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Vol. 1.

No. 1 (pls.	1-5)	appeared on	May 1, 1907
2 („	6-10)	„ „ June	30, —
3 („	11-15)	„ „ Aug.	8, —
4 („	16-20)	„ „ Nov.	1, —
5 („	21-25)	„ „ Dec.	24, —
6 („	26-30)	„ „ Feb.	19, 1908
7 („	31-35)	„ „ June	11, —
8 („	36-40)	„ „ July	24, —
9 („	41-45)	„ „ Nov.	28, —
10 („	46-50)	„ „ Mar.	15, 1909

日本藻類圖譜

第一卷

理学博士

岡村金太郎著

ICONES OF JAPANESE ALGÆ

Vol. I.

K. OKAMURA Rigakuhakushi



風間書房

KAZAMASHOBO

NO. 34. 1-CHOME KANDA JINBOCHO CHIYODAKU
TOKYO JAPAN

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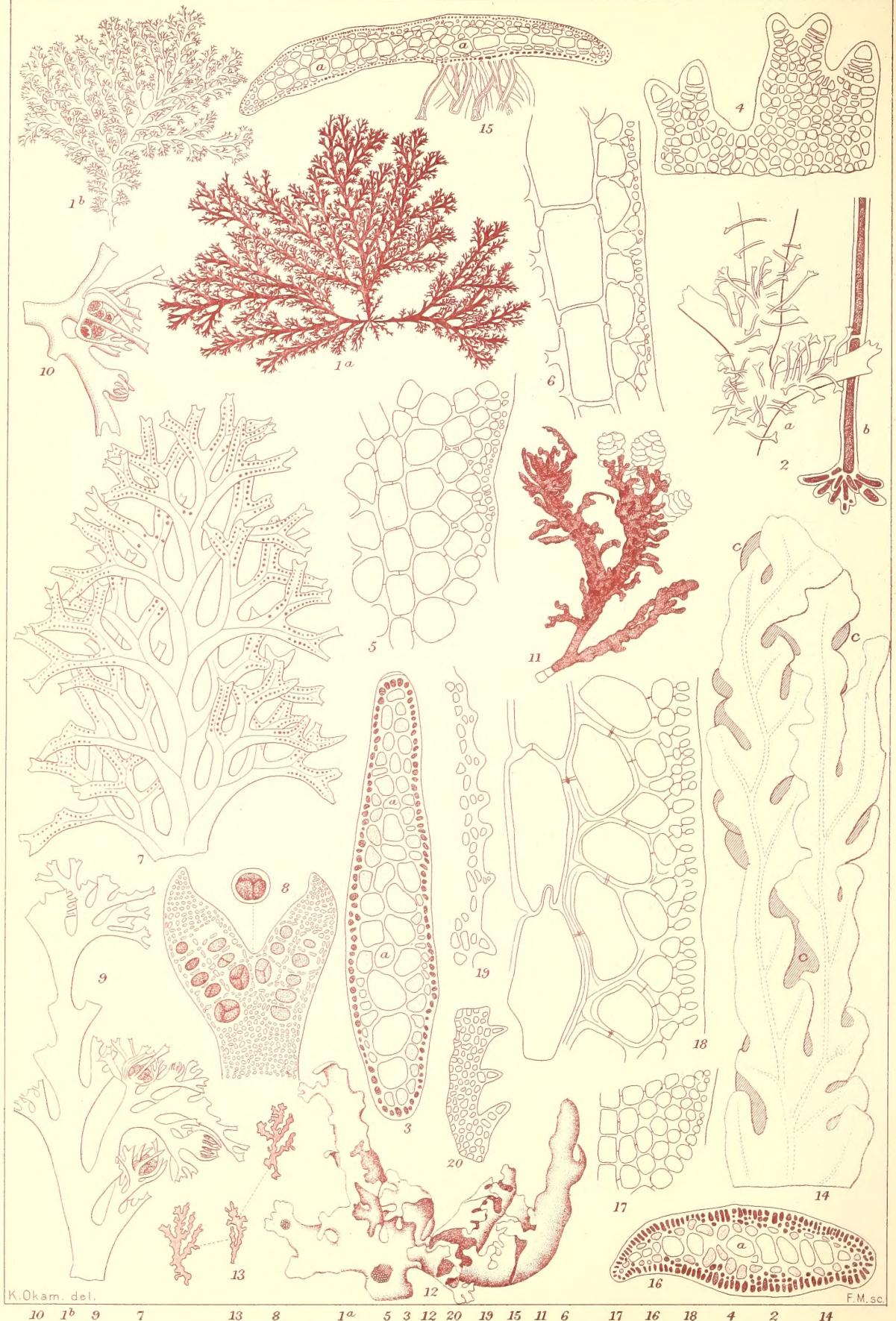
CONTENTS OF VOL. I.

(ARRANGED IN THE ALPHABETICAL ORDER OF GENERA.)

	PLATES
<i>Acanthophora muscoides</i> Bory.	ことげのり VIII
<i>Acanthophora orientalis</i> J. Ag.	とげのり VIII
<i>Acrocystis nana</i> Zanard.	つくしほづき VI-VII
<i>Amansia japonica</i> (Holm.) Okam., antheridia and procarps of.	ひをどしぐさ ノ精子器及胎原 XXI
<i>Anadyomene Wrightii</i> Harv.	うきおりさう XL
<i>Apoglossum violaceum</i> (Harv.) J. Ag.	ぬめはのり XXXI-XXXII
<i>Asparagopsis Sanfordiana</i> Harv.	かぎけのり XXVIII
<i>Bornetella capitata</i> (Harv.) J. Ag.	みづたま XXIV
<i>Bostrychia Andoi</i> Okam. n. sp.	たにこけもどき XXII
<i>Bostrychia tenella</i> (Vahl) J. Ag.	こけもどき XXII
<i>Caloglossa Leprieurii</i> (Mont.) J. Ag.	あやぎぬ XXXVI-XXXVII
<i>Caloglossa ogasawaraensis</i> Okam.	ほそあやぎぬ XXXVII
<i>Calosiphonia vermicularis</i> (J. Ag.) Schm.	ぬめりぐさ XLIX
<i>Carpoblepharis Schmitziana</i> (Rbd.) Okam.	ちりもみぢち II
<i>Carpomitra Cabrerae</i> (Clem.) Kuetz.	いちめがさ XV
<i>Catenella Opuntia</i> (Good. et Woodw.) Grev.	いそもくくわ XXXIX
<i>Ceramium Boydenii</i> Gepp.	いぎす L
<i>Chlamidote repens</i> Okam. (Nom. emend.)	ふたへあふぎ XXIV
<i>Chondria armata</i> (Kuetz.) Okam.	はなやなぎ XVI
<i>Chondria crassicaulis</i> Harv.	ゆな III
<i>Colpomenia sinuosa</i> (Roth) Derb. et Sol.	ふくろのり XIX-XX
<i>Cutleria adspersa</i> (Roth) De Not.	けべりぐさ XIX
<i>Cylindrocarpus rugosa</i> Okam.	しわのかわ V
<i>Delisea japonica</i> Okam. n. sp.	たまいいたゞき XXIX
<i>Desmarestia tabacoides</i> Okam. n. sp.	たばこぐさ XXXVIII-XXXIX
<i>Dictyosphaeria favulosa</i> (Mert. ?) Decsne.	きつかうぐさ XL
<i>Dudresnaya japonica</i> Okam. n. sp.	ひびらうど XI-XII
<i>Dumontia filiformis</i> (Fl. Dan.) Grev.	りうもんさう XVI
<i>Enantiocladia latiuscula</i> (Harv.) Okam.	あいそめぐさ IX-X
<i>Endocladia complanata</i> Harv.	いそだんつう XXVII-XXXIII
<i>Eudesme virescens</i> (Carm.) J. Ag.	おきなはもづく XVII
<i>Euzoniella flaccida</i> (Harv.) Fkbg.	くしのは XXXII & woodcut
<i>Gastroclonium ovale</i> (Huds.) Kuetz.	いそまつ XVII

Gelidium subcostatum Okam.
Cigartina intermedia Sur.
Gigartina pacifica Kjellm.
Gigartina Teedii (Roth) Lmx.
Gigartina tenella Harv.
Gratelouphia lancifolia (Harv.) Okam.
Gymnosorus collaris (Ag.) J. Ag.
Halicoryne Wrightii Harv.
Haliseris divaricata Okam. n. sp.
Haliseris latiuscula Okam. n. sp.
Haliseris prolifera Okam.
Haliseris undulata Holmes.
Halymenia acuminata (Holm.) J. Ag.
Hydroclathrus cancellatus Bory.
Hypnea pannosa J. Ag.
Hypoglossum geminatum Okam. n. sp.
Leathesia difformis (L.) Aresch.
Mesogloia crassa Suring.
Microcladia corallinae (Mart.) Okam.
Microcladia elegans Okam. n. sp.
Nemalion pulvinatum Grun.
Nitophyllum uncinatum (Turn.) J. Ag.
Pachidictyon coriaceum (Holm.) Okam.
Pterosiphonia complanata Harv.
Ptilota asplenoides (Turn.) Ag.
Ptilota californica Rupr.
Ptilota pectinata (Gunn.) Kjellm.
Rhodymenia pertusa (P. et R.) J. Ag.
Scinaia furcellata (Turn.) Biv.
Scytoniphon lomentarius (Lyngb.) J. Ag.
Struvea delicatula Kuetz.
Struvea tenuis Zanard.
Stylopodium lobatum Kuetz.
Udotea conglutinata (Soland.) Lam.
Udotea javensis (Mont.) Gepp.
Zonaria Diesingiana J. Ag.

	PLATES
ひ ら く さ	XLVI
か い の り	XXXV
い ほ の り	XXXIV
し き ん の り	XXXIII
す ぎ の り	XXXIII
き よ う の ひ も	XXXIV
は い あ ふ ぎ	XXIV
い そ す ぎ な	XLIII
ゑ ぞ や は づ	XIII-XIV
や は づ ぐ さ	XIV
へ ら や は づ	XII
し わ や は づ	XI
お ほ ひ か で の り	XXXV
か ご め の り	IV-V
こ け い ば ら	X
べ に は の り	XXXII
ね ば り も	XVIII
ふ と も づ く	XX
に く さ え だ	I-II
さ え だ	I
か も か し ら の り	IX
か ぎ う す ば の り	XXVI
さ な だ ぐ さ	XXIII-XXIV
は ね ぐ さ	XXVII
か た わ べ に ひ ば	XLVIII
か し わ ば べ に ひ ば	XLIX
く し べ に ひ ば	XLVII
あ な だ る す	XXI
ふ さ の り	II-III
か や も の り	XXX
さ い の め あ み は	XL
あ み は	XL
ち が み ぐ さ	XXV
は ご ろ も	XLIV-XLV
ひ め い て う	XLV
し ま あ ふ ぎ	IV



K. Okam. del.

F.M. sc.

10 1b 9 7 13 8 1a 5 3 12 20 19 15 11 6 17 16 18 4 2 14

Microcladia elegans Sp. nov., さえだ新称, Fig. 1-10.
Microcladia Corallinae (Mart.) Okam., さくさえだ新称 Fig. 11-20.

Microcladia elegans Sp. nov.

Nom Jap.: *Sa-éda.*

PL. I. Figs. 1-10.

Microcladia glandulosa (?) Grev., Okam. On Microcladia and Carpolepharis (The Bot. Mag., Tokyo, Vol. XIV, 1900) p. 4, Pl. I, Figs. 2-7.—岡村, 日本藻類名彙, p. 233.

Fronds linear, ancipito-compressed, membranaceous, erect or ascending from decumbent base, where the plant emits monosiphonous root-fibres from the under-surface. *Ramification* alternato-pinnate along rachis, distichous, with patent axils; ramuli and ramelli erect or erecto-patent alternately arranged, dichotomous with bifid or slightly incurved apices. Plant attains 4-5 cm. in height, with the breadth of about 1 mm. in segments. *Tetrasporangia* somewhat regularly arranged in longitudinal row along either external or both sides of ramelli, roundish, cruciate or irregularly triparted. *Cystocarps* sessile on the apex or side of ramuli, provided with simple or forked, flat involucres. *Colour* red. In drying, plant imperfectly adheres to paper.

Structure of frond: Around the central axis there are six cells which form the bases of branches verticillately arising from the axis. Those branches consisting of a row of a few roundish empty cells ascend obliquely. Cells in that row become gradually smaller upwards, and the ultimate ones form the cortical cellules; also the remaining cells cut off minor ones towards surface of frond, and by further divisions they form cortical cells for the respective positions.

In my paper quoted above, I described the present plant under the name of *M. glandulosa* Grev. with question mark, as I had not then seen any specimen of it. Later, Mr. Reinbold kindly sent me a

specimen of the species just mentioned to help me in making comparison. Studying it, I found the plant in question to be more regularly pinnate than that species which has a deliquescently dichotomous ramification. The present species stands in the vicinity of *M. Coulteri* Harv. on the character of the ramification.

Hab.: On other algae between tide marks or in deeper waters; Tōtōmi, Sagami. Bōshyū.

PL. I, Figs. 1-10. Fig. 1: *a*, sterile frond, $\frac{1}{1}$; *b*, frond bearing tetrasporangia, $\frac{1}{1}$.—Fig. 2: *a*, under-surface of the basal portion of frond, showing root-fibres, $\frac{37}{1}$; *b*, one of root fibres, $\frac{240}{1}$.—Fig. 3: cross-section of lower portion of frond; *a*, *a*, the central axis, $\frac{85}{1}$.—Fig. 4: growing apices of ramelli, $\frac{390}{1}$.—Fig. 5: longitudinal section cut parallel to the surface of frond, $\frac{91}{1}$.—Fig. 6: longitudinal section cut perpendicular to the surface of frond, $\frac{220}{1}$.—Fig. 7: Ramuli bearing tetrasporangia, ca. $\frac{16}{1}$.—Fig. 8: apex of sporiferous ramelli, $\frac{85}{1}$; *above*, a tetrasporangium $\frac{85}{1}$.—Fig. 9: portion of branch bearing cystocarps, ca. $\frac{8}{1}$.—Fig. 10: cystocarps, $\frac{17}{1}$.

Microcladia Grev. 1830.

さえだ属

CERAMIACEAE.

いぎす科.

體ハ直立或ハ匍匐シ, 圓柱狀又ハ扁壓ニシテ, 同一ノ面ニ屢々叉狀
様羽狀ニ分岐ス, 體ノ各部ハ平等ニ小サキ皮層細胞ヲ被ムリ, 別段一
區域ヅ皮層細胞ノ關節シタル如キ容子ナシ. 構造ハ中央ニ一條ノ
中軸細胞アリテ, 之ヨリ外方ニ向ヒ斜ニ數條ノ(概ネ六條)枝ヲ生ズ; 此枝
ハ圓形—多角形ノ細胞ヨリ成リ, 内部ノ大ナルモノヨリ漸々外方ニ向
フニ隨テ小サク成リ, 其外面ニ近キ部分ノ細胞ヨリ小サキ皮層細胞ヲ
分裂ス. 四分胞子囊ハ三角錐形又ハ十字様(?)ニ分裂シ, 末位ノ小枝

ノ皮層下ニ埋在ス，囊果ハ短キ小枝ノ頂端ニ坐シ，時トシテハ(其之ヲ有スル枝ノ短クナレル爲メ)殆ンド無柄ノ如クナリテ，太キ枝ノ側部ニ坐スルコトアリ；常ニ多數ノ苞枝ヲ以テ圍マレ，仁ハ數塊ヨリ成リ，無色ノ粘膜ヲ以テ蔽ハル。

從來知ラレタル種類ハ五六種ニシテ，専ラ大西洋及太平洋西部ニアリ，本邦下記ノ二種アルヲ知ル。

Microcladia elegans 新種.

さえだ 岡村新稱.

第I圖版, 1-10圖.

體ハ線狀ニシテ扁平，膜質，下部ノ裏面ヨリ單管毛狀ノ根ヲ出シテ他ノ海藻上ニ付着シ，上部ハ斜上シ又ハ直立ス；其幼キ時ハ殆ド全部匍匐スレドモ，漸ク長スルニ從テ大部分ハ直立ス。充分成長シタルモノニテハ多少明ナル主枝ヲ有シ，其兩緣ヨリ稍叉狀様羽狀ニ枝ヲ互生ス。下部ノ枝ハ上部ノモノヨリモ長ク，腋廣キヲ以テ，全體ノ枝態宛モ繖房狀ヲナス。小枝ハ枝ノ兩側ヨリ互生シ，數回叉狀ニ分レ時ニ扇狀ヲナス；最末小枝ハ頂端叉狀ヲナスカ，又ハ始メ叉枝ノ兩方トモ内方ニ屈曲スレドモ後廣開ス。

四分胞子囊ハ小枝ノ末位ノ外側又ハ内外側ニ縦列ヲナシテ生ジ，往々又横ニ列セル如ク見ヘ，多少規則正シク並列スレドモ，時ニハ列ノ下方ニ於テ二三餘分ニ之ヲ生ズル爲メ，其正シキ配列ヲ素ルコトアリ而シテ，球狀ニシテ，十字様又ハ不規則ナル三角錐形ニ分裂ス。囊果ハ小枝ノ頂端又ハ緣邊ニ坐シ，無柄ニシテ單條又ハ分叉セル扁キ苞枝ヲ以テ圍マレ，數個ノ仁ヲ藏ス。

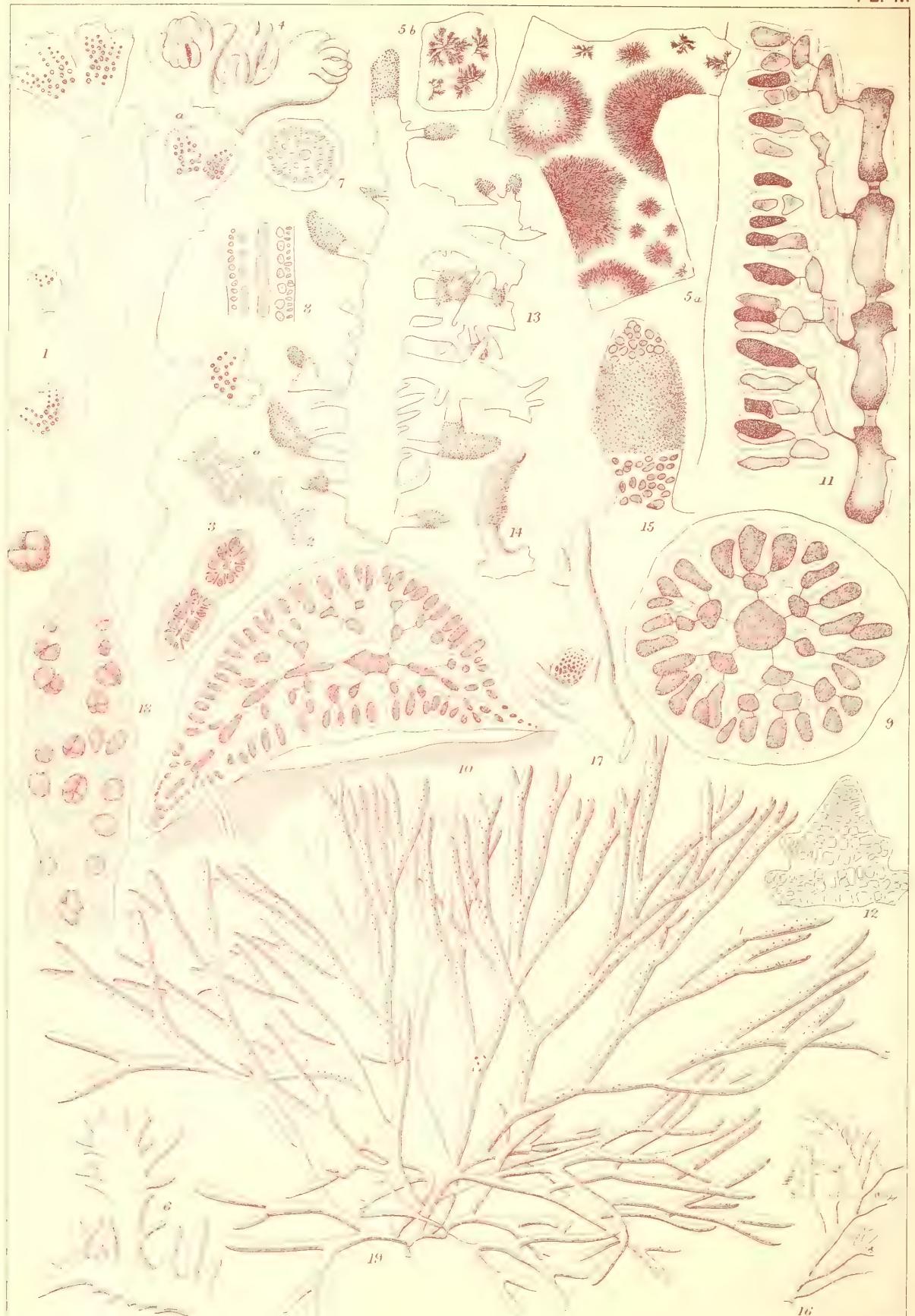
體ヲ橫斷スレバ，中軸細胞ト兩緣トノ間ニ横ニ並列セル一層ノ稍大ナル細胞アルヲ見ルベシ(3圖)；此細胞ハ中軸細胞ヨリ輪狀ニ出タル枝ノ一部ナルコトハ5圖ノ如ク體ノ表面ニ並行ニ切リタル斷面ト，6圖ノ如ク之ニ直角ニ切リタルモノトヲ比較シテ知ルベシ；輪狀ニ出ル枝ハ

六條ニシテ，横斷面ニテハ宛モ周心管ノ如ク見ユ；此輪狀ニ出ル枝ノ胞細ハ上部ニ至ルニ隨テ小サク成リ，且體ノ外面ニ近キ部分ノ細胞ヨリ，漸々小ナル細胞ヲ分裂シ，其最外部ノモノ相集リテ皮層ヲナスコト，**5-6** 圖ニ示ス處ノ如シ。紅色；膠質ニシテ紙ニ付着セズ。

產地：潮線間又ハ其以下ニ生ズル他ノ藻類ノ體上ニ付着ス。遠江，相模，安房。

本植物ハ曩キニ予ガ上記植物學雜誌第十四卷歐文p. 4 = *M. glandulosa* (?) トシテ記載シタルモノニシテ，當時予ハ其標品ヲ見ザリシニヘ，之ガ比較研究ヲナス能ハザリシカバ (?) 印ヲ付シテ置キタリ。其後ラインボールド氏ハ深切ニモ予ニ其標品ヲ送ラレタル故，以テ比較シタルニ，該種ハ本邦ノ種ヨリモ遙ニ叉狀ニ分枝シテ，主枝ナルモノナシ；之ニ依テ予ハ今本種ヲ一新種トシタルナリ。本種ハ北米ニ產スル *M. Coulteri* Harv. ニ近シトス。

第I圖版，1-10圖，**1**: a, 實ナキモノ，自然大；b, 四分胞子ヲ有スル體，自然大。**2**: a, 體ノ下部ヲ裏面ヨリ見テ，其毛狀根ヲ示ス， $\frac{37}{1}$ ；b, 毛狀根， $\frac{340}{1}$ 。**3**: a, 體ノ橫斷面；a, a, 中軸細胞， $\frac{85}{1}$ 。**4**: 小枝ノ成長點， $\frac{390}{1}$.**5**: 體ノ表面ニ並行シテ切リタル斷面， $\frac{91}{1}$ 。**6**: 體ノ表面ニ直角ニ切リタル斷面， $\frac{220}{1}$ 。**7**: 四分胞子囊ヲ有スル小枝，約 $\frac{16}{1}$ 。**8**: 同上ノ先端ニシテ，上ニ一個ノ四分胞子囊ヲ示ス， $\frac{85}{1}$ 。**9**: 囊果ヲ有スル枝ノ一部，約 $\frac{8}{1}$ 。**10**: 囊果， $\frac{17}{1}$.



K. Okam del.

Microcladia Corallinae (Mart.) Okam. ふくさえだ; Fig. 1-4.
 Carpoblepharis Schmitziana (Rbd) Okam. ちりもみぢ; Fig. 5-18.
 Scinaia furcellata (Turn.) Biv.; ふきのう; Fig. 19.

1 18 6 3 4 2 8 7 19 5b 10 14 13 17 15 5a 16 11 12 9

Microcladia Corallinae (Mart.) Okam.

Nom. Jap.: *Niku-Saéda*.

(PL. I, Figs. 11-20; PL. II, Figs. 1-4.)

M. Corallinae (under *Herpochondria Corallinae* Falkenb.) Okam.
On Microcladia and Carpoblepharis (The Bot. Mag. Tokyo, Vol. XIV, 1900) p. 6, PL. I, Figs. 8-13; Id. *Algae Japonicae Exsiccatae* (日本海藻標品), Fasc. II, No. 79; 岡村, 日本藻類名彙, p. 233.—*Herpochondria Corallinae* (Mart.) Falkenb., Rhodomelaceen (1901) pp. 216, 735, t. 22, f. 35-38; Id., in Engl. und Prantl Natürl. Pflanzenfam. (1897), p. 435, f. 244 E.—De Toni Syll. Alg. Vol. 1V, p. 852.—*Rhizophyllis Corallinae* Mart. Tange d. Preuss. Exped. n. Ost-Asien (1866), p. 119, t. VIII, Fig. 1.—De Toni Phyc. Jap. Novae (1895), p. 40.

Hab.: On calcareous algae growing near high tide or between tide marks; Kishyu, Sagami, Bōshyu, Hitachi.

PL. I, Figs. 11-20. Fig. 11: plant on Amphirosa in nat. state and size.—Fig. 12: plant detached from the substratum showing the mode of ramification and two tufts of root fibres, $\frac{5}{1}$.—Fig. 13: three dried specimens detached from the substratum, $\frac{1}{1}$.—Fig. 14: portion of frond on Amphirosa, $c, c, \frac{12}{1}$.—Fig. 15: cross-section of attached portion of frond; a, a , central axes, $\frac{54}{1}$.—Fig. 16: cross-section of free portion of the frond; a , the central axis, $\frac{73}{1}$.—Fig. 17: longitudinal section cut parallel to the surface of frond, $\frac{54}{1}$.—Fig. 18: longitudinal section cut perpendicular to the surface of frond, $\frac{220}{1}$.—Figs. 19-20: margins of ramuli and involucres, $\frac{220}{1}$.

PL. II, Figs. 1-4. Fig. 1: piece of sporiferous frond, $\frac{17}{1}$.—Fig. 2: the apical portion, a , of Fig. 1 more highly magd.; a , apical cells, $\frac{240}{1}$.—Fig. 3: cross-section of stichidial ramuli, $\frac{21}{1}$.—Fig. 4: cystocarps, $\frac{15}{1}$.

Microcladia Corallinae (Mart.) Okam.

にくさえだ 岡村新種.

第 I 圖版, 11-26 圖; 第 II 圖版, 1-4 圖.

體ハ小ニシテ線狀、多少多肉ニシテ兩緣ニ薄ク、稍叉狀ニ互生シ、裏面ヨリ單管毛狀ノ根ヲ束狀ニ出シテ さんごも科藻類ノ體上ニ在リ、其大部分ハ固着スレドモ上端ハ游離ス。枝ハ多少正シク兩緣ヨリ互生シ、其游離端ハ圓形又ハ扇狀ニ擴ガル；枝ノ頂端ハ圓クシテ中央部ニ窪ミ、其底ノ兩側ニ二個ノ成長點アリ；其附近ノ皮層細胞ハ中央線ニ向テ集中シ、且內方ニ屈曲シ、二乃至三個細胞ヨリ成レル齒狀突起アリ。四分胞子囊ヲ藏スル小枝ハ只一個ノ頂細胞ヲ有スト雖モ、是ハ原來叉狀ヲナセル小枝ガ四分胞子囊ヲ有スル爲ニ特ニ成長シタルニ依ルナリ。體ノ長サハ 4-5 cm. ニシテ幅 1-2 mm. ナリ。四分胞子囊ハ特ニ成長セル小枝(頂細胞ノ一個アルモノ)又ハ常態ノ小枝(同上ノ二個ヲ有スルモノ)ノ上部ノ皮層下ニ生ズ；始メハ正シク縱横ノ列ヲナシ、表面ヨリ見ルニ、三乃至四列ヲ呈スレドモ、後漸ク其數ヲ増スニ至テ不規則トナル。四分胞子囊ヲ有スル小枝ハ往々聚リテ生ジ、又時ニ體ノ裏面ヨリ副出スルコトアリ。囊果ハ體ノ緣邊ノ小枝ニ生ジ、往々相集合ス；苞枝ハ九條程ニテ、扁壓シ、二三ノ細胞ヨリ成レル齒ヲ有スルカ或ハ之ヲ有セズ；仁ハ少ナキアリ又多キアリ。體ノ構造ハ前種ト同ジ。色ハ血紅色ニシテ；質多肉軟骨様ナリ。

產地：高潮線ニ近ク又ハ潮線間ニ生ズルさんごも科藻類ノ上ニ固着ス。紀州、相州(江ノ島、横濱)、房州、水戸。

此種ハ v. Martens ガ我邦ニテ採集サレタル標品ニ就テ 1866 = *Rhizophyllum Corallinae* トシテ發表シタルモノナリ。然ルニ 1897 = 至リ、Falkenberg ハ之ヲふぢまつも科ノ一新屬トシテ *Herpochondria* ト云ヘル屬中ニ配セリ。予ハ上記植物學雜誌上ニ其非ナルヲ論ジタレドモ、Falkenberg ハ尙ホ之ヲ疑ヒ、予ニ其標品ヲ送ランコトヲ請ヘリ；依テ予ハ曩キニ其四

分胞子囊ト囊果トヲ有スルモノ二個ヲ氏ニ送リタルニ, 其後何等ノ返事ナク, 又何レノ誌上ニモ(手ノ知ル丈ニ就テ), 之ニ關シテ氏ノ答ヘタルモノアルヲ知ラズ; 想フニ多分氏モ其誤リナルヲ知リタルナルベシ.

第I圖版, 11-20圖. 11: さんごも類ノ上ニ付着セル植物ノ自然ノ狀態, 自然大.—12: さんごも類ヨリ離シタルモノニシテ, 二束ノ根ノ出ル狀ト枝態トヲ示ス, $\frac{5}{1}$.—13: 同シク乾燥シタル三個ノ標品, $\frac{1}{1}$.—14: さんごも體c, c上ニアルマヽノ廓大圖, $\frac{12}{1}$.—15: 體ノ付着シタル部分ノ橫斷面; a, 中軸, $\frac{54}{1}$.—16: 體ノ游離セル部分ノ橫斷面; a, 中軸, $\frac{53}{1}$.—17: 體ノ表面ニ並行シテ切リタル面, $\frac{54}{1}$.—18: 體ノ表面ニ垂直ニ切リタル斷面, $\frac{220}{1}$.—19-20: 小枝ノ成長端及苞枝ノ緣邊, $\frac{220}{1}$.

第II圖版, 1-4圖. 1: 四分胞子囊ヲ有スル體ノ一部, $\frac{17}{1}$.—2: 第1圖ノ成長點, a, ヲ廓大シタルモノ; a, 頂細胞, $\frac{240}{1}$.—3: 四分胞子囊ヲ有スル小枝ノ橫斷面, $\frac{41}{1}$.—4: 囊果, $\frac{15}{1}$.

Carpoblepharis Schmitziana (Rbd.) Okam.

Nom. Jap.: *Chiri-momidji*.

PL. II. Figs. 5-18.

C. Schmitziana (under *Gloiothamnion Schmitzianum* Rbd.) Okam., On Microcladia and Carpoblepharis (The Bot. Mag. Tokyo, Vol. XIV, 1900) p. 8, Pl. I, Figs. 14-17; Id., Alg. Jap. Exsic. (日本海藻標品) Fasc. II, No. 77; 岡村, 日本藻類名彙, P. 80.—*Gloiothamnion Schmitzianum* Rbd., eine neue Ceram. aus d. Jap. Meere, 1897 (Hedwigia XXXIV, p. 205) tab. III; in Engl. und Prantl Natürl. Pflanzenfam. (1897) p. 502,—*Reinboldiella Schmitziana* (Rbd.) De Toni Phyc. Jap Nov. (1895), p. 35; Id., Syll. Alg., Vol. IV, p. 1498.

Hab.: On the frond of Chondrus, Grateloupia etc. growing between tide-marks; Chikuzen, Shima, Sagami, Bōshyu, Kadzusa, Rikuzen.

PL. II. Figs. 5-18. Fig. 5: *a*, different patches of the plant on the frond of Grateloupia, in nat. state and size; *b*, some of smaller fronds detached, showing ramification, $\frac{1}{1}$.—Fig. 6: portion of an extraordinary broader frond, $\frac{31}{1}$.—Fig. 7: cross-section of filiform frond, $\frac{81}{1}$.—Fig. 8: longitudinal section of the same, $\frac{81}{1}$.—Fig. 9: cross-section of somewhat thicker filiform frond, $\frac{360}{1}$.—Fig. 10: cross-section of frond cut from the same specimen as figured in Fig. 9, showing a root fibre penetrating into the body of another alga, $\frac{240}{1}$.—Fig. 11: longitudinal section cut perpendicular to the surface of frond, $\frac{360}{1}$.—Fig. 12: growing apex of frond, $\frac{220}{1}$.—Fig. 13-14: portion of frond bearing antheridia, $\frac{54}{1}$.—Fig. 15: antheridial ramellus, highly magd., $\frac{220}{1}$.—Fig. 16: portion of frond bearing cystocarps, $\frac{11}{1}$.—Fig. 17: cystocarp, $\frac{63}{1}$.—Fig. 18: surface view of sporiferous rameulus; *above*, a tetrasporangium, $\frac{220}{1}$.

Carpoblepharis Kützing 1843.

ちりもみぢ属.

© CERAMIACEAE. いぎす科.

體ハ直立シ或ハ匍匐シ, 扁平又ハ多少扁壓ニシテ, 兩縁ヨリ屢々羽狀ニ分枝シ, 枝ハ皆同一ノ平面ニアリテ不規則ニ互生シ, 基部莖ノ如ク細ル. 枝ハ皆左右相稱ニ形成セラレ, 中央ニ稍太キ中軸アリテ, 之ヨリ輪生セル枝ヲ生ズ(此枝ハ概ネ六條トス); 此枝ハ中軸ニ近キ程大ナル細胞ニシテ, 漸次外方ニ小形トナリ, 其分裂ニ依テ生ジタル小細胞相集リテ皮層ヲナス. 頂細胞ハ横ニ關節シ, 其分裂ニ依リテ生ジタ

ル關節セル各細胞列ハ左右相稱ヲナス(12圖ヲ參考スペシ)。四分胞子囊ハ特ニ變形セル枝ニ多數ニ形成セラレ皮層下ニ埋在シ、多少明ニ横列ヲナシ、三角錐形ニ分裂ス。胎原列ハ極メテ小ナル、特別ノ側枝ニ生ジ、此枝ハ分岐セザル小羽枝ノ上部ノ緣邊ヨリ小サキ突起ノ如ク形成セラル;而シテ其枝ノ中軸ヨリ輪生スル皮層形成絲ノ側部ニ少數ニ形成セラレ、四個ノ細胞ヨリ成リ僅ニ鈎状ニ屈曲ス;此胎原列ヲ支フル基部トナレル細胞ヨリ後助細胞ヲ形成ス。囊果ハ之ヲ生ズル枝ノ頂端ニ生ズレドモ、其短キ爲ニ宛モ小枝ノ緣邊ニ坐スルガ如ク見ユ、而シテ苞枝ヲ以テ圍マレ數塊ノ圓キ小仁ヲ藏ス。

模範種タル *Carpoblepharis flaccida* ハ喜望峰ニ產シ、其他一、二ノ亞弗利加南岸ニ產スルモノアリ;臺灣亦一種ヲ產スト云フ。本邦内地ニハ下記ノ一種アルノミ。

Carpoblepharis Schmitziana (Rbd.) Okam.

ちりもみち 岡村 稱。

第II圖版、5-18圖。

體ハ極メテ矮小ニシテ細線狀ヲナシ、單獨又ハ相集リテ不規則ナル圓形ノ斑ヲ作リ、他ノ海藻上ニ付着ス。體ハ絲狀ニシテ、圓柱狀又ハ稍扁壓、太サ0.13 mm.ヨリ0.18 mm.ヲ普通トシ、其幅廣キモノハ0.37 mmヨリ0.5 mm.ニ達ス;枝ハ稍不規則ナル羽狀ニシテ互生シ、皆兩緣ヨリ生ズ;而シテ體ノ裏面ノ一部ヨリ毛狀根ヲ出シ、之ヲ他ノ海藻ノ體内ニ送入シテ固着ス(寄生ニハアラズ)。構造ハ屬ノ性質ニ同ジク、7-12圖ヲ以テ知ルベシ。精子細胞ハ小枝ノ皮層細胞ヨリ變ジ、相集リテ精子器ヲ形成ス。四分胞子囊ハ小枝ノ皮層下ニ生ジ、多少横ニ列シ、十字様又ハ不規則ナル三角錐形ニ分裂ス。囊果ハ小枝ノ側部ニ生ジ、短キ苞枝ヲ存ス。苞枝ノ一ハ伸ビテ枝ノ如クナル。色ハ紅色ナリ。

產地: 潮線間又ハ其以下ニ生ズルつのみた、たんばのり、むかでのり等ノ體上ニ生ズ。筑前、志摩、相模、安房、上總、陸前(氣仙沼)。

第II圖版, 5-18圖, 5: a. たんばのりノ上ニ大小ノ斑ヲ形成セル狀;
b. 單獨ノ體ヲ二三別離シタルモノ, $\frac{1}{1}$.—6: 甚シク幅廣キ體ノ一部,
 $\frac{31}{1}$.—7: 絲狀ヲナセル體ノ横斷面, $\frac{80}{1}$.—8: 同上ノ縱斷面, $\frac{80}{1}$.—9: 絲狀
ヲナセル體ノ横斷面ノ廓大圖, $\frac{360}{1}$.—10: 第9圖ニ示シタルト同一
ノ標品ヲ横斷シタルモノニシテ, 一條ノ毛狀根ハ他ノ藻ノ體内ニ入ル
ヲ示ス, $\frac{240}{1}$.—11: 體ノ表面ニ直角ニ切リタル面, $\frac{360}{1}$.—12: 體ノ成長
端, $\frac{220}{1}$.—13-14: 精子器ヲ存スル體ノ一部, $\frac{54}{1}$.—15: 同上ノ一ヲ廓大
シテ示ス, $\frac{220}{1}$.—16: 囊果ヲ有スル枝ノ一部, $\frac{11}{1}$.—17: 囊果, $\frac{63}{1}$.—18: 四
分胞子囊ヲ有スル枝ノ表面ニシテ, 上ニ一個ノ胞子ヲ示ス, $\frac{220}{1}$.

Scinaia furcellata (Turn.) Biv.

Nom. Jap.: *Fusa-nori*.

PL. II, Fig. 19; PL. III, Figs. 16-20.

Scinaia furcellata (Turn.) Biv.¹⁾ in *Iride* (Palermo 1882) c. icon;
J. Ag. Sp. II, p. 422; Id. Epicr. p. 512; Ardis. Phyc. Medit. I, p.
269; Farl. Alg. of New Engl., p. 117; De Toni Syll. Alg. IV, p. 104;
Okam. Alg. Jap. Exsic. (日本海藻標品) Fasc. I, No. 2; 岡村, 日
本藻類名彙 p. 17.—*Ulva furcellata* Turn.¹⁾ in Schrad. Journ. 1860,
p. 30I, c. icon.—*Ginnaia furcellata* Harv. Phyc. Brit. tab. LXIX; Kütz.
Sp. Alg. p. 715; Id. Tab. Phyc. XVI, t. 68, f. II.—*Halymenia furcellata*
Harv. Man. p. 52; J. Ag. Alg. Med. 98.—*Myelomium furcellatum* Kütz.
Phyc. gener. tab. 73, fig. 1.—*Ginnaia pulvinata* Kütz. Phyc. gener. p.
299, p. 715; Id. Tab. Phyc. XVI t. 68, f. a. b.—*Myelomium pulvinatum*
Kütz. Phyc. gener. p. 393.

1) References in Italic indicate those which the author has no facility to refer. (草書
體ノ典籍ハ著者親シク参考スル能ハサリシカドモ, 種名始メテ發表サレタモノユヘ記ス。)

Hab.: On rocks, stones etc. between tide-marks in calm place. Common along the Pacific coast from Nagasaki to Prov. Hitachi; Hachijo-jima; Prov. Idzumo.

Pl. II, Fig. 19: fructified frond in nat size.

PL. III, Figs. 16-20. Fig. 16: cross-section of frond bearing cystocarps, magd.—Fig. 17: surface view of frond, $\frac{360}{1}$.—Fig. 18: portion of cross section of frond, showing the structure of cortical layer, $\frac{600}{1}$.—Fig. 19: vertical section of cystocarp, $\frac{220}{1}$.—Fig. 20: spore-filaments, $\frac{600}{1}$.

Scinaia Bivona 1822.

ふさのり属.

CHAETANGIACEAE. キータンギア科.

體ハ圓柱狀又ハ稜柱狀ニシテ叉狀, 概ネ同一ノ高サニ分岐ス. 體部ハ體ノ中心ヲ縱走セル絲ノ相集リテ可ナリ細キ軸ヲ形成セルモノヨリ成リ, 此絲周邊ニ向テ屢々叉狀ニ分レ, 遂ニ皮層ヲナス; 皮下層ハ甚シク緩ク集リ, 皮層ハ稍大ニシテ殆ンド空虛ナル如キ細胞ノ密ニ相隣接シタルモノヨリ成ル. 四分胞子囊ハ未詳. 精子器ハ小細胞ノ集リタル小サキ群ヨリ成リ, 體ノ表面ニ散在ス. 胎原例ハ甚ダ小ニシテ, 三個ノ細胞ヨリ成リ, 其周圍ニ極メテ短キ一二ノ關節セル細胞ヨリ成レル枝ヲ存ス. 囊果ハ體ノ表面下ニ形成セラレタル窪窓中ニアリテ, 薄キ周壁ヲ以テ圍マレ, 一ノ小孔ヲ以テ體ノ表面ニ開口ス. 仁ハ屢々分岐セル胞子絲ノ直立セル束ヨリ成リ, 胞子絲ハ小サキ細胞ヨリ成ル; 而シテ仁ハ「バラフヰシス」ニテ區分セラルルコトナク, 一塊ヲナス.

多數ノ種類アリテ多クハ暖海ノ產ナリ. 本邦下ノ一種ヲ產ス.

Scinaia furcellata (Turn.) Biv.

ふさのり 岡村稱

第II圖版, 19圖; 第III圖版, 16-20圖.

體ハ圓柱狀ニシテ屢々規則正シク叉狀ニ分岐シ, 枝皆同一ノ高サニ達ス; 脇銳角ナリ; 高サ 10-20 cm., 太サ 2-3 mm. アリ. 體ノ下部ハ極メテ小距離ノ間細クシテ上方ニ太ク, 枝端ハ鈍頭又ハ二裂ス. 囊果ハ皮層下ニアリテ, 小サキ點ノ如ク, 枝ノ大部分ニ散在ス. 構造ハ屬ノ性質ニ同ジ. 色ハ血紅色ニシテ, 質ハ甚シク粘質ニ富ミ, 乾燥スル時ハ紙ニ固着ス.

產地: 低潮線付近ノ靜ナル所ニアル岩石ニ生ズ. 長崎, 土佐, 東海道沿岸, 八丈島, 常陸, 出雲.

分布: 大西洋中 Helgoland ヨリ Tingin ニ至ル間及北米沿岸; アドリア海; 喜望峰; タスマニア及ニウジーランド; 太平洋中チリ, サンドウ井ツチ島, 日本.

第II圖版, 19圖. 囊果ヲ熟シタル植物, $\frac{1}{1}$.

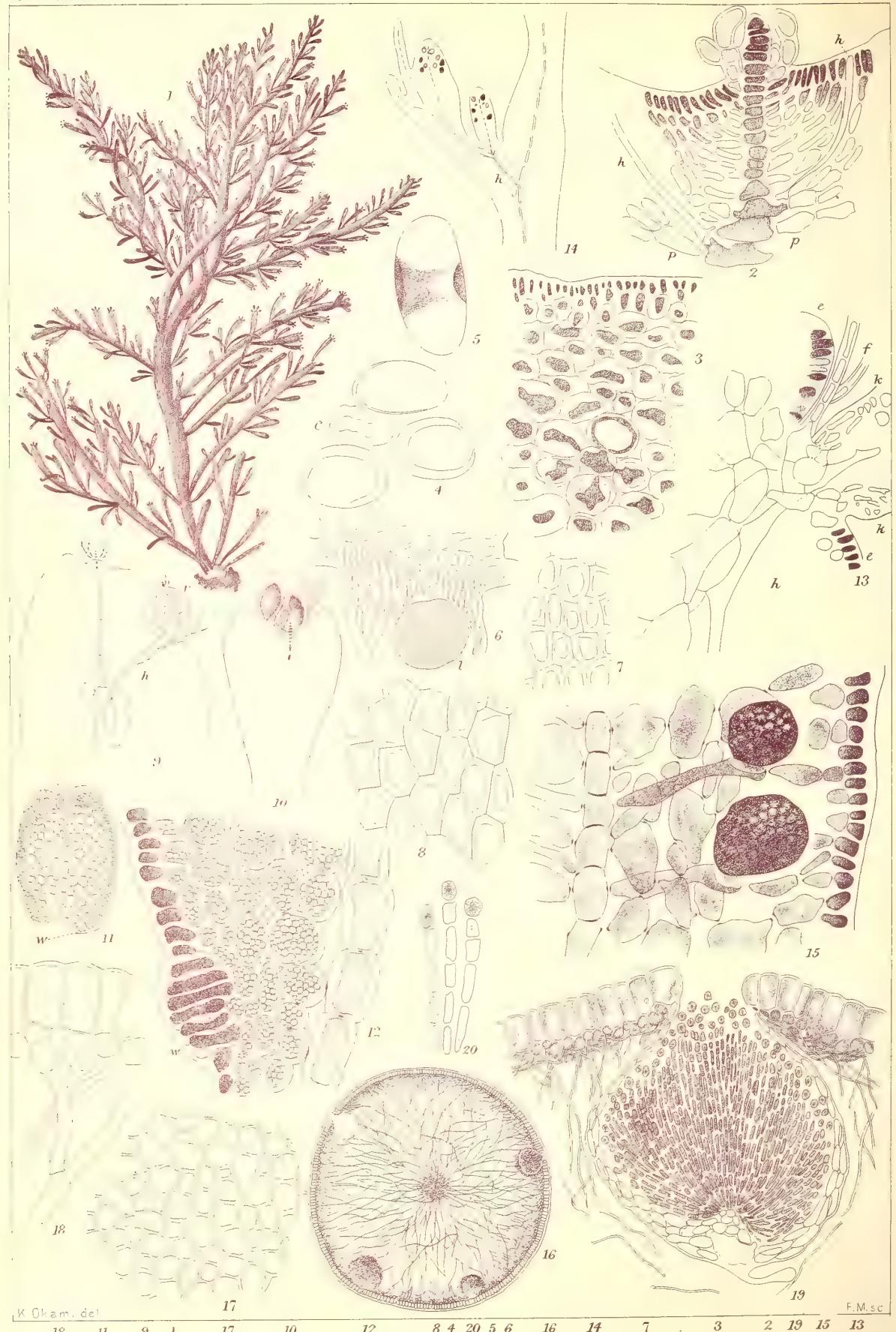
第III圖版, 16-20圖. 16: 囊果ヲ有スル體ノ横斷面, 廓大.—17: 體ノ表面, $\frac{390}{1}$.—18: 體ノ横断面ノ一部ヲ廓大シテ皮部ノ構造ヲ示ス, $\frac{600}{1}$.—19: 囊果ノ縦断面, $\frac{220}{1}$.—20: 胞子絲ノ一部, $\frac{600}{1}$.

Chondria crassicaulis Harv.

Nom. Jap.: *Yuna*.

PL. III, Figs. 1-15.

Chondria crassicaulis Harv. Alg. Wright. in Proceed. Amer. Acad. Vol IV, (1859) p. 329; J. Ag. Anal. Algol. (1892) p. 161; Holmes New Mar. Alg. f. Japan (Journ. Linn. Soc., Bot. Vol., XXXI, 1895) p.



K. Okam. del.

F.M. sc.

Chondria crassicaulis Harv., やぶ, Fig. 1-15.
Scinaia furcellata (Turn) Biv., ふさのり, 新称, Fig. 16-20.

256, Pl. VIII, Fig. 4 *a-c*; De Toni Syll. Alg. Vol. IV, pp. 849 and 548; Okam. On the Veget. Multipl. of *C. crass.* and its Syst. Posit. (Bot. Mag. Tokyo, Vol. XVII, 1903) p. 1; Id., Alg. Jap. Exsic. (日本海藻標品) Fasc. I. no. 23; 岡村, 日本藻類名彙 p. 58.

Hab.: On rocks between tide-marks or in deeper waters; very common along both coasts of the main-island (*Honshyu*) and the Hokkaido.

PL. III, Figs. 1-15. Fig. 1: plant with propagative knobs in nat. state and size.—Fig. 2: growing apex of branch, $\frac{220}{1}$; *p. p.*, pericentral cells; *h*, *h*, basal cells of hair-leaves.—Fig. 3: portion of cross-section of frond, showing the central cell and 5 pericentral cells, $\frac{91}{1}$.—Fig. 4: 3 pericentral cells in cross-section to show belt-like thickening of cell wall; *c*, central cell, $\frac{175}{1}$.—Fig. 5: one of pericentral cells detached, to show the thickening, $\frac{175}{1}$.—Fig. 6: lower portion of frond holding faston a calcareous alga, *l*, $\frac{54}{1}$.—Fig. 7: surface view of a ramellus, $\frac{390}{1}$.—Fig. 8: surface view of a ramulus $\frac{220}{1}$.—Fig. 9: longitudinal section of terminal portion of branch, showing the development of a young normal ramulus, *r*, from a basal cell of hair-leaf, *h*, $\frac{74}{1}$.—Fig. 10: longitudinal section of a branch, showing the development of 3 young knobs from basal cells of hairs, magd.—Fig. 11: longitudinal section of a knob; *w*, beginning of root cells, $\frac{42}{1}$.—Fig. 12: lower portion of knob partly magnified, to show root cells, *w*, and the accumulation of reserve-starches in cortical cells, $\frac{220}{1}$.—Fig. 13: portion of longitudinal section of branch, to show the weak and loose connection of propagative knob, *k*, *k*; *e*, *e*, epidermal layer of branch bearing the knob, *k*, *k*; *b*, hair-leaves; *h* basal cell of a hair-leaf which has here given origin to the propagative knob, *k*, and hair-leaf, *b*, magd.—Fig. 14: longitudinal section of branch bearing 2 or 3 stichidial ramuli; *h*, basal cell of a hair-leaf, $\frac{10}{1}$.—Fig. 15: portion of a longitudinal section of stichidial ramulus, showing 2 tetrasporangia, $\frac{220}{1}$.

Chondria Ag. 1817.

やなぎのり属

RHODOMELACEAE. ふぢまつも科.

體ハ直立、圓柱狀又ハ時トシテ扁壓、極メテ密ニ分枝シ、軟骨様一多肉ニシテ、細胞組織ヨリ成ル。周心管ハ五個ニシテ可ナリ太ク、明ニ他ト區別セラルベキ中軸ノ周圍ヲ圍ミ、周心細胞ノ周圍ハ密集セル「パレンキマ」細胞ヨリ成ル；此細胞ハ内部ノモノ程大ニシテ漸々外方ニ小形トナル。成長點ハ枝ノ頂端ヨリ伸ビ出デ、毛狀枝ヲ存シ、往々枝端ノ小ナル窪ノ中ニアルコトアリ。實ヲ熟シタル部分ハ特ニ變形セザル上部ノ枝ニアリ。四分胞子囊ハ之ヲ有スル短キ枝ニ多數ニ生ジ、下部ヨリ漸次上方ニ熟シ、充分熟スルトキハ甚シク膨大シ、各節(即チ中軸細胞ノ節ヨリ出ル周心細胞ヲツヅクノ節ト見ルナリ)ニ互生スレドモ、只見タル所ニテハ輪生セル如ク見ユ；胞子ハ三角錐様ニ分裂ス。精子細胞及胎心細胞ハ枝ノ頂端ノ毛狀枝ヲ存スル部分ニ多數ニ形成セラル。精子器ハ毛狀枝ノ枝ヨリ變成シ、卵圓形ニシテ往々屈曲セル盤狀體ヲ爲シ、短柄ヲ有ス。胎原列ハ極メテ短キ柄ヲ有シ、多クハ可ナリ判シ。囊果ハ卵形ニシテ枝ノ側面ニ集リ生ズ。

約二十五種アリテ諸所ノ暖キ海ニ産ス。本邦亦四、五種アリ。

Chondria crassicaulis Harv.

ゆな(長洲萩方言)

第III圖版、1-15圖。

體ハ圓柱狀(時ニ扁圓ナルアリ)ニシテ下部少距離ノ間細ク、中央部ヨリ上部へ太ク、極メテ多肉ナリ、太サ2—5 mm.ニ達シ、高サ又10—20 cm.アリ。枝ハ稍不規則ニ各方面ニ出デ、散生ス；枝及小枝ハ先端鈍圓ナレドモ、基部ハ細シ、殊ニ小枝ヲ然リトス。小枝ハ枝ノ其處此處ヨリ單獨ニ又ハ集リテ叢生シ、葉腋及ビ頂端ヨリモ出ヅ；其出ル所ハ多ク稍凹ミヲナス。四分胞子囊ハ此等ノ枝ニ生ジ、其等ノ枝ハ別ニ著シキ形狀ヲナズ。小枝ノ頂端ニ、時期ニ依リ、概ネ小サキ球狀體ノ發生スルコトアリ、大サケシノ種子又ハまつばばたんノ種子ノ如シ；此モノハ小枝ノ變形シタルモノニシテ、中ニ澱粉ヲ貯ヘ。

後母體ヨリ落チテ新個體ヲナスコト，他ノ植物ノ球芽ニ異ナラズ。囊果ハ多分之ヲ生ゼザルナラン。

體ノ構造ハ中軸ノ周圍ニ五個ノ周心細胞アリ(3圖)，此細胞ハ其赤道部ニ不平等ノ厚ヲ有ス(4, 5圖)；中軸ハ枝ノ頂端ヨリ上方ニ伸出デテ成長點ヲ形成シ(2圖)，其部ニハ毛狀枝アリ。毛狀枝ハ中軸ノ各細胞ヨリ一條宛出ヅ，而シテ，後脱落スレドモ，其中軸ヨリ連絡シタル部分ハ殘存シ，其部ノ肥厚スルト共ニ，細長キ細胞トナル，之ヲ毛基細胞(basal cell of a hair-leaf)ト稱ス；故ニ中軸細胞ヨリハ各五個ノ周心細胞ト，一條ノ毛基細胞トヲ出スナリ。此毛基細胞ハ體ノ各部ニ於テ枝ヲ生ズル時，其基礎トナルモノタルコトハ2, 9, 13, 14圖等ノクヲ以テ見ルベク，10圖モ亦之ヲ示ス；之ニ依テ毛基細胞ハ枝ノ中軸トナルモノトス。小枝ハ初メ橢圓—卵形ノ小球狀體ヲナセドモ，其中内部ノ細胞内ニ多量ニ澱粉ヲ貯フルニ至ルモノアリテ，少シモ伸ルコトナク，後球芽トナリテ落ツ；其枝ト連絡スル部分ノ組織ガ極メテ微弱ニ形成セラル、コトハ13圖ヲ見テ知ルベシ。此球芽ノ基部ノ左右ニ，少シク隆起セル部アリテ，其處ノ細胞稍長キ表皮細胞ヨリ成レルモノハ後付着器トナル所ナリ。四分胞子囊ハ周心細胞ノ枝ナル細胞ニシテ，其上側ニ生ジ，其周心細胞ハ更ニ外方ニ伸ビ，分裂シテ皮層ヲナス；此類ノ植物ニハ特ニ四分胞子囊ヲ蔽フ蓋細胞ナシ。

色ハ綠色，紫紅色又ハ黃色ニシテ，質ハ多肉軟骨様ナリ；乾燥スルトキハ臺紙ニ膠着ス。

產地：潮線間又ハ其以下ノ岩石ニ生ズ。長門ヨリ函館ニ至リ，出雲ヨリ能登，越後ヲ經テ利尻島ニ至ル。

第III圖版，1—15圖。1：球芽ヲ有スル體ノ自然狀態， $\frac{1}{1}$ —2：成長點； b , b ，周心細胞； h ，毛基細胞， $\frac{220}{1}$ —3：枝ノ横斷面ノ一部ニシテ中軸及五周心管ヲ示ス， $\frac{91}{1}$ —4：三個ノ周心管ニシテ其厚ミヲ示ス； c ，中軸， $\frac{175}{1}$ —5：一周心細胞ノ全形ニシテ，赤道部ノ厚ミヲ示ス， $\frac{175}{1}$ —6：體ノ下部ガさんごも類， l ，ニ付着スル狀， $\frac{54}{1}$ —7：最末小枝ノ表面， $\frac{390}{1}$ —8：稍大ナル小枝ノ表面， $\frac{220}{1}$ —9：常態ノ小枝， r ，ガ枝ヨリ出ル狀； h ハ毛基細胞， $\frac{74}{1}$ —10：三個ノ球芽ノ幼キモノガ枝端ヨリ生ズル狀，廓大—11：球芽ノ縱斷； w ，根ノ始メ， $\frac{42}{1}$ —12：球芽ノ下部ノ一部ニシテ，澱粉ヲ貯ル狀ト根ノ始メノ細胞， w ，トヲ示ス， $\frac{220}{1}$ —

13: 球芽, *k*, ガ枝ニ付着スル部ノ縦断ニシテ, 其連絡ノ極メテ弱キヲ示ス; *e*, *e*, 枝ノ表皮; *b*, 毛基細胞; *b*, 毛状葉; 廓大.—14: 小枝ニ四分胞子囊ヲ生ジタルモノ; *b*, 毛基細胞, $\frac{10}{1}$.—15: 四分胞子托ノ縦断面ノ一部ニシテ, 四分胞子囊ガ周心細胞ノ上ノ側ニ生ズル状, $\frac{220}{1}$.

Zonaria Diesingiana J. Ag.

Nom. Jap.: *Shima-Ogi*.

PL. IV, Figs. 1-10.

Zonaria Diesingiana J. Ag. Sp. Alg. I, p. 109; Id., Till Alg. Syst II, p. 46; Id., Anal. Algol. Cont. I, p. 13; De Toni Syll. Alg. III, p. 229; Okam. Alg. Jap. Exsic. (日本海藻標品) Fasc. II, No. 84; 日本藻類名彙 p. 107; Kütz. Tab. Phyc. IX, t. 75?

Hab.: On rocks near or below low tide-mark. Kyūshū, Tsushima Sagami, Bōshyū.

Pl. IV, Figs. 1-10. Fig. 1: *a*, upper surface of frond with rib-like thick stuppeous coating, $\frac{1}{1}$; *b*, under-surface of another frond, showing stuppeous patches and propagula, $\frac{1}{1}$; *c*, upper surface of still another frond having sori, $\frac{1}{1}$.—Fig. 2: radial longitudinal section of growing margin of frond, the side marked *e* showing the upper surface, $\frac{140}{1}$.—Fig. 3: marginal portion of upper surface, $\frac{220}{1}$.—Fig. 4: marginal portion of under-surface, $\frac{320}{1}$.—Fig. 5: one of stuppeous hairs, $\frac{54}{1}$.—Fig. 6: portion of radial longitudinal section of frond showing different stages of the development of propagula *a*, *a*; *l*, connecting filament, $\frac{220}{1}$.—Fig. 7: a little advanced stage of a propagulum; *l*, filament connected with mother plant; *r*, *r*, root-fibres, $\frac{220}{1}$.—Fig. 8: surface view of sori, $\frac{12}{1}$.—Fig. 9: vertical section of a sorus, $\frac{54}{1}$.—Fig. 10: portion of the same, $\frac{220}{1}$.



Zonaria Diesingiana J. Ag., しまあふぎ, Fig. 1-10.
Hydroclathrus cancellatus Bory, かざめのり, Fig. 11.

Zonaria (Draparn. 1801) J. Ag. 1841.

しまあふぎ属

DICTYOTACEAE. あみちぐさ科

體ハ扁平、扇状ニシテ往々重圈状ノ線ヲ呈シ、匍匐シ、斜上シ、或ハ直立ス；體ノ下部ハ褐色ノ毛葺ヲ存シ直立スル場合ニハ往々相集リテ恰モ莖ノ如キ又ハ中肋ノ如キ觀ヲ呈ス。體ハ二層ヨリ成ル；内層ハ無色ナル四角形ノ細胞多數正シク相重疊シ、外層ハ一層ノ皮層細胞ヨリ成ル；皮層細胞ノ二個ハ内部細胞ノ一ニ相當シ表裏兩面トモニ列ヲナシテ放射状ニ縦列ス。子囊群ハ關節セル「パラフヰス」ヲ有シ、被膜ヲ以テ蔽ハレ、後此被膜ヲ破リテ外部ニ出ヅ、又別ニ芽ヲ生ジテ、營養體ノ分殖ヲナスコトアリ。

四、五ノ確定シタル種アリテ多クハ暖海ノ產ナリ。

Zonaria Diesingiana J. Ag.

しまあふぎ 岡村稱。

第IV圖版. 1-10圖。

體ハ平臥シ、互ニ相重疊シ、體ノ下部ヨリ黃褐色ノ毛葺ヲ生ジ、此モノ體ノ表面ニ於テ宛モ中肋若クハ莖ノ如キ觀ヲ呈シ、裏面ニテハ稍重圈状ヲナシテ班状ニ集ル。體ハ扇状ニ開張スレドモ屢々放射状ニ裂ケ、其少シク老成セルモノニテハ全形ヲ存スルモノナシ。大サハ2-8 cm. 程ナリ。毛葺ハ單管ニシテ分枝ス。子囊群ハ體ノ兩面ニ生ジ、圓形ニシテ低ク隆起シ、其始メハ薄キ被膜ヲ被ムル；子囊ハ棍棒狀ナリ。老成セル體ハ其裏面ヨリ芽ヲ生ズ；其狀6圖ニ示ス如ク、體ノ内部ノ細胞ヨリ一列ノ絲ヲ出シ、此絲ノ先端ノ細胞分裂シテ團扇狀ヲナシ、後長ジテ芽トナリ、母體ヨリ離レテ新植物トナル。體ノ互ニ重疊スルハ蓋シ此ガ爲メナリトス。

產地：潮線間乃至其以下ノ岩石ニ重疊シテ生ズ。對州、日向、肥前等ヨリ相模、房州ニ至ル。

分布：ニウホルランド。

第IV圖版. 1-10圖. 1: a, 體ノ表面ニシテ、毛葺ガ中肋又ハ莖ノ如キ觀ヲ呈スル狀、 $\frac{1}{1}$; b, 他ノ標品ノ裏面ニ毛葺ノ斑點狀ヲナセルモノ及芽ヲ有スル狀、 $\frac{1}{1}$; c, 子囊群ヲ有スル體ノ表面、 $\frac{1}{1}$; -2: 體ノ成長緣

ヲ放射狀線ニ沿フテ縱斷シタルモノ, *e* ノ側ハ體ノ表面ナリ, $\frac{140}{1}$.—
3: 表面ヨリ見タル成長縁, $\frac{220}{1}$.—4: 體ヲ裏面ヨリ見タルモノ, $\frac{390}{1}$.—
5: 毛葺ノ一ヲ廓大シテ示ス, $\frac{54}{1}$.—6: 體ノ縱斷ノ一部ニシテ芽, *a*,
ノ種々ノ發生狀態ヲ示ス; *l*, 母體ト連絡セル絲, $\frac{220}{1}$.—7: 芽ノ稍進ミタル
モノ, $\frac{220}{1}$; *l*, 母體ト連絡スル絲; *r*, *r*, 根毛.—8: 子囊群ヲ上ヨリ
見タルモノ, $\frac{12}{1}$.—9: 子囊群ノ縱斷, $\frac{54}{1}$.—10: 子囊群ノ一部, $\frac{220}{1}$.

Hydroclathrus cancellatus Bory.

Nom. Jap.: *Kagome-nori*.

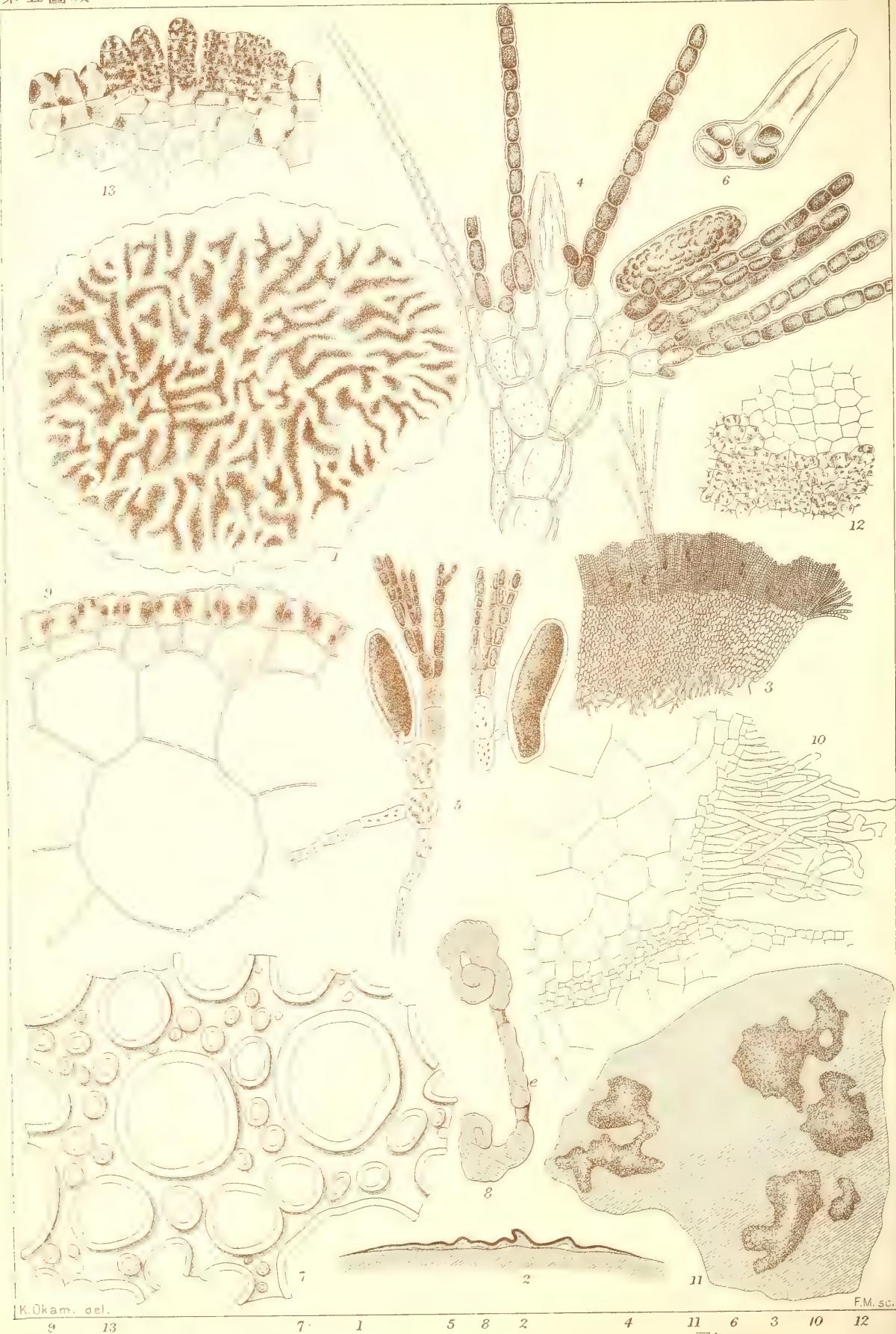
PL. IV, Fig. 11; PL. V, Figs. 7-13.

Hydroclathrus cancellatus Bory *Dict. Class. VIII*, p. 419; Harv. Phyc. Aust. tab. 98; De Toni Syll. Alg. III p. 490; Okam. Alg. Jap. Exsic. (日本海藻標品) Fasc. I, No. 43; 日本藻類名彙 p. 117.—*Hydrodictyon cancellatum* Kütz. Phyc. gener. p. 336.—*Encoelium clathratum* Kütz. Sp. Alg. p. 552.—*Asperococcus clathrus* J. Ag. Sp. Alg. I p. 75.

Hab.: On rocks or stones near or below low tide-mark. Riukiu, Ogasawara-jima, Kyūshyū, Shikoku, Boshyū, Noto, Etchu.

PL. IV, Fig. 11. Fig. 11: plant taken from deep waters in nat. state and size.

PL. V, Figs. 7-13. Fig. 7: portion of frond seen from inner surface of frond, slightly magd.—Fig. 8: portion of the cross-section of frond, the side *e* showing the upper surface, $\frac{5}{1}$.—Fig. 9: a part of cortical portion, $\frac{600}{1}$.—Fig. 10: portion of the cross-section of frond showing root-like hairs and adhesion of parts, $\frac{54}{1}$.—Fig. 11: surface view of frond showing sori, $\frac{54}{1}$.—Fig. 12: portion of a sorus and epidermal layer seen from above, $\frac{600}{1}$.—Fig. 13: vertical section of a sorus showing plurilocular sporangia, $\frac{600}{1}$.



K. Okam. del.

Cylindrocarpus rugosa Okam., しはのかわ; Fig. 1-6
Hydroclathrus cancellatus Bory, かぶめのり, Fig. 7-13

F.M. sc.

Hydroclathrus Bory 1826.

かごめのり属

ENCOELIACEAE. ふくろのり科

體ハ囊状ニシテ、二層ヨリ成ル；内層ハ大ナル圓形一多角形ノ殆ド空虚ナル數層ノ細胞ヨリ成リ、外部ニ近ヅクニ從テ漸ク小サク、外層ハ一層ノ表皮細胞ヨリ成ル；表皮細胞ハ之ヲ表面ヨル見ル時ハ殆ド四角又ハ五角形ナリ。體壁ハ大小數個ノ孔ヲ以テ穿タレ、網状ヲナス；孔ノ縁邊ハ體ノ内部ノ方ニ卷曲ス。子囊群ハ雲状ノ輪廓ヲナシテ體ノ表面ニ顯ハレ、後殆ド全面ニ擴ガル。子囊ハ複子囊ニシテ稜柱状ヲナシ、密ニ相接ス；「バラフヰシス」ナシ。單子囊未詳。

下記ノ一種ノミニシテ廣ク各地ノ熱帶及温帶ノ海ニ産ス。

Hydroclathrus cancellatus Bory.

かごめのり 岡村 稔。

第IV圖版, 10圖; 第V圖版, 7-13圖。

屬ノ性質ニ同ジ。大サハ體ノ相重疊スル爲メ不定ナレドモ、其深處ヨリ出ルモノハ多ク單獨ニシテ往々 30 cm. 程ノモノアリ。色黃褐色ニシテ、柔滑ナリ、破レ易シ。

產地：潮線間及低潮線以下ノ岩石ニ生ズ。琉球、小笠原島、九州、四國、東海道、能登、越中。

分布：大西洋、地中海、紅海、濠洲、南洋諸島。

第IV圖版, 10圖：深所ヨリ獲タル個體, $\frac{1}{2}$ 。

第V圖版, 7-13圖. 7: 體ノ内面ヨリ見タル狀、少シク廓大シタルモノ。

—8: 體壁ノ横斷面ノ一部；e ノ側ガ表面ナリ, $\frac{5}{1}$.—9: 體壁ノ一部, $\frac{600}{1}$.—10: 體ノ部分ノ互ニ癒着スル狀及根毛, $\frac{54}{1}$.—11: 體ノ表面ニ複子囊群ノアル状ヲ示ス, $\frac{54}{1}$.—12: 複子囊群ト體ノ皮層トヲ上ヨリ見タルモノ, $\frac{600}{1}$.—13: 複子囊群ノ縦斷面, $\frac{600}{1}$.

Cylindrocarpus rugosa Okam.

Nom. Jap.: *Shiwa-no-kawa.*

PL. V, Figs. 1-6.

Cylindrocarpus rugosa Okam. Alg. Jap. Exsic. (日本海藻標品) Fasc. II, No. 88; Id. Contents of the Alg. Jap. Exsic. II (Bot. Mag Tokyo, Vol. XVII, 1903) p. 131; 日本藻類名彙 p. 123.

Fronds, when solitary, form more or less circularly expanded, leather-like crust which attains the size of from a few cm. to 10 or more in diam., and afterward become confluent. The thickness of crust, which measures 0.5-1.5 mm., decreases as it proceeds from the centre toward the periphery. Frond when young firmly adheres to substratum with its whole under-surface by emitting abundant hair-like roots, and in its young stage, it has even and flat upper surface; but as it advances in age, it becomes more and more wrinkled and folded, and the most part of central portion of frond becomes detached from the substratum. Assimilatory filaments are long, linear, fastigiate and slightly torulose. Unilocular sporangia are elongated oval or oblong, and are furnished laterally with a one or two-celled short filiform pedicel.

Hab.: On rocks at and above high tide-mark. Common along the Pacific coast. Shima, Idzu, Suruga, Sagami, Bōshyū; Hakodate.—Sporangia in late spring.

A distinct species, distinguished from the typical plant, *C. Berkeleyi* (Grev.) Cr. by its non-hemispherical and wrinkled crust-like frond.

PL. V, Figs. 1-6. Fig. 1: solitary frond in nat. state and size.—Fig. 2: vertical section of frond, showing wrinkled surface, slightly magd.—Fig. 3, portion of vertical section of frond, magd.—Fig. 4: assimilatory filaments, a hair and sporangia, one of which is full of

contents, $\frac{390}{1}$.—Fig. 5: 2 sporangia, $\frac{240}{1}$.—Fig. 6: zoospores just germinating within a sporangium.

Cylindrocarpus Crouan 1851.

しわのかわ属

CHORDARIACEAE. まつも科.

體ハ小ニシテ、多少壓セラレタル如キ低キ半球狀ヲナシ、中實ニシテ、海綿質ノ如ク、多肉ナリ。類化絲ハ束狀ニ出デ、略ボ同一ノ太サノ枝ヲ出ス。單子囊ハ圓柱狀ニシテ長味アリ、時トシテハ下方ニ或ハ側面ニ膨レ出デ、大ニシテ、類化絲ノ基部ニ生ズ。復子囊ハ未詳。體ハ幼キ類化絲ノ頂部ノ細胞ノ分裂ニヨリテ成長增大ス。

從來知ラレタルモノ歐洲ノ大西洋沿岸ニ二種アリ；今本邦下記ノ一種ヲ加フ。

Cylindrocarpus rugosa Okam.

しわのかわ (房州方言)。

第V圖版、16圖。

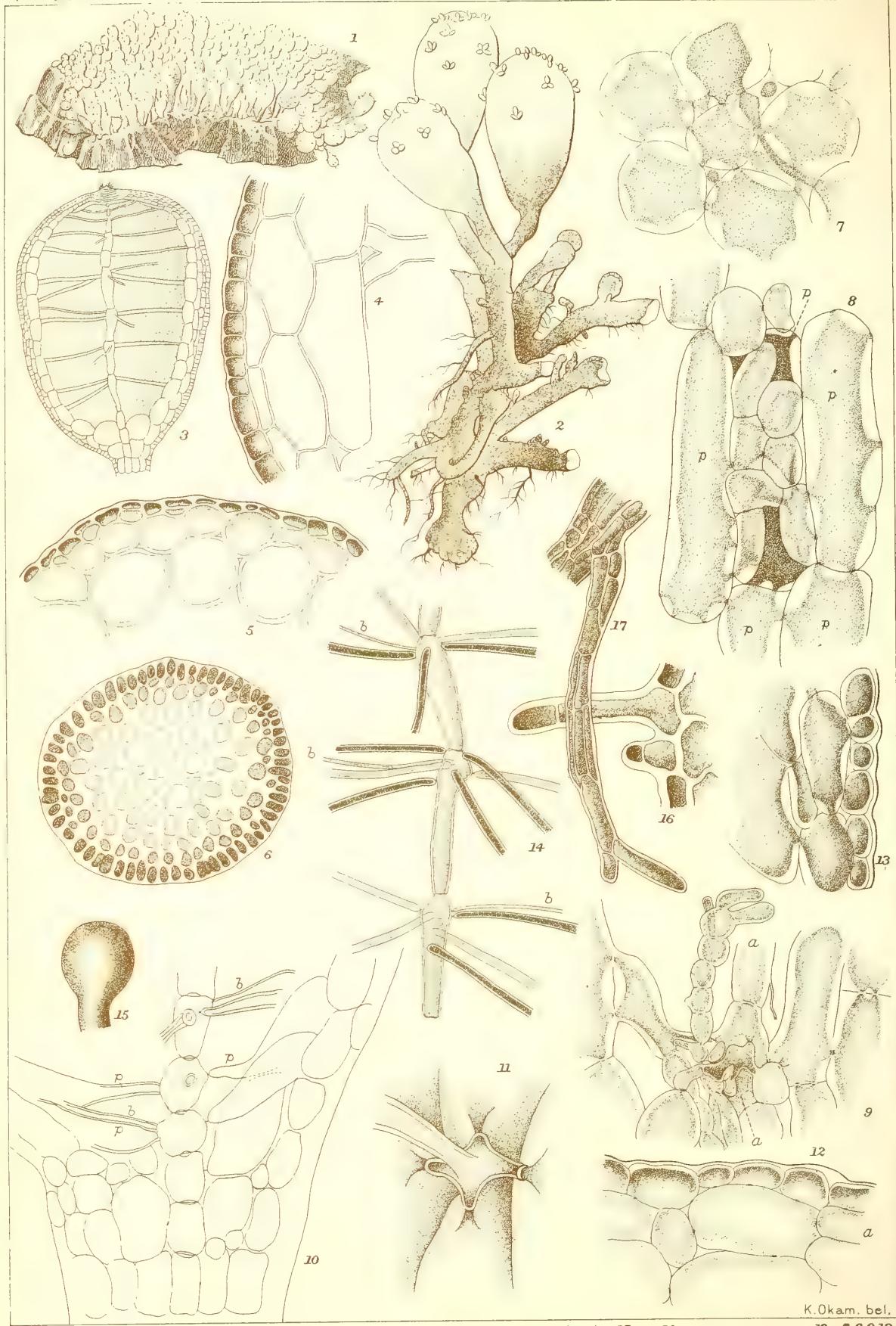
體ハ單獨ノ時ハ多少圓形ニ擴ガレル革質ノ殼狀ヲナシ、1乃至2 cm. ヨリ 10 cm. 乃至夫以上ノ直徑ヲ有スレドモ、後漸々多數ノ體相接近シテ互ニ癒着スルニ至ル。殼皮ノ厚サハ 0.5—1.5 mm. ニシテ、中心部ヨリ周圍ノ方ニ行クニ從テ厚ミヲ減ズ。體ノ幼キ時ハ密ニ其裏面ヨリ多數ノ毛狀根ヲ出シテ、岩石ニ付着シ、表面ハ平坦ナレドモ、漸ク長ズルニ從テ漸次皺ヲ生ジテ褶襞ノ如クナリ、之ガ爲ニ中心部ノ大半ハ岩面ヨリ脫離スルニ至ル。類化絲ハ長クシテ線狀、直立、束集シ、節部ハ少シク膨出ス。單子囊ハ長卵形又ハ長橢圓形ニシテ、側面ニ一、二ノ細胞ヨリ成レル短キ絲狀ノ柄ヲ有ス。色ハ暗褐色、稍栗色ナリ。

產地：高潮線乃至其以上ノ岩石ニ生ズ、太平洋沿岸ニ多ク、志洲ヨリ函館ノ間之アルヲ知ル；他ニモ多カラン。子囊ハ晚春。

此屬ノ模範種タル *C. Berkeleyi* (Grev.) Cr. (= *Petrospongium Berkeleyi* Naegeli) ト明ニ區別セラルベキ種ニシテ、其之ト異ナル點ハ體

ノ半球狀ナラザルト皺アル殼狀ヲナセルトニ存ス。

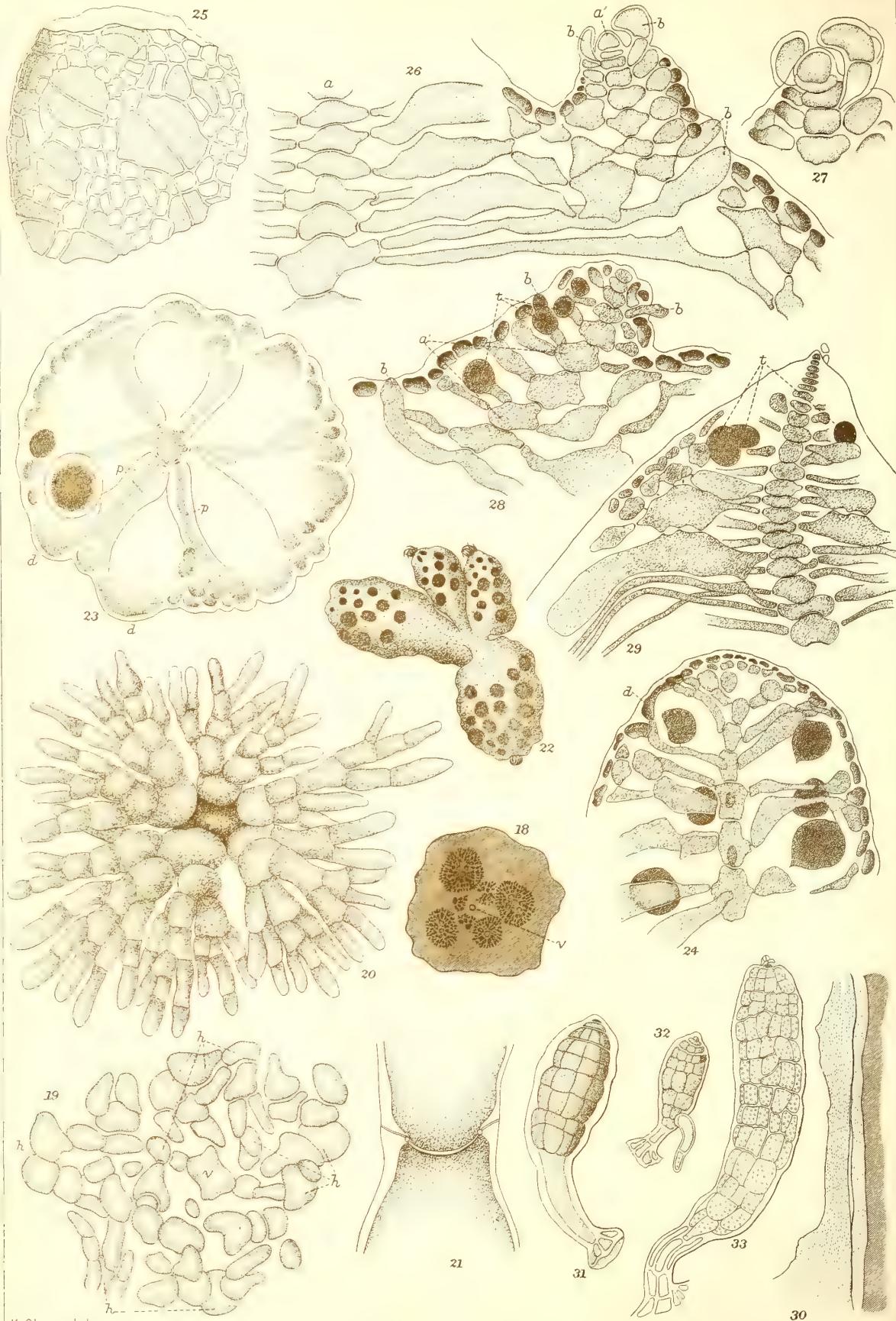
第V圖版, 1-6圖. 1: 單獨ナル植物ノ自然ノ狀態, 1,—2: 體ヲ
横斷シテ其皺ヲナセル狀ヲ示ス, 郷大.—3: 同上ノ一部, 郷大.—4: 類化
絲ト, 一條ノ毛ト, 子囊トヲ示ス; 子囊ノ一ハ空虛ニシテ一ハ游走子ヲ
藏ス, $\frac{390}{1}$.—5: 二個ノ子囊, $\frac{240}{1}$.—6: 將ニ萌發セントスル游走子, 郷
大.



Acrocystis nana Zanard., つくしへづき, Fig. 1-17.

K. Okam. bel.

12 78913



K. Okam. del.

19 23 25 20 26 28 18 22 31 29 32 24 33 30 30 27

Acrocystis nana Zanard., つくしはづき, Fig. 18-33.

Acrocystis nana Zanard.

CHONDRIEAE (RHODOMELACEAE).

Nom. Jap.: *Tsukushi-Hōdzuki*,

PL. VI-VII.

Acrocystis nana Zanard. Phyc. Ind., 1872, p. 145, Tab. VIII, A, fig. 1-6; Schmitz u. Falkenberg in Engler u. Prantl's Nat. Pflanzenfam. I Teil, 2 Abt., p. 480, fig. 266 c; Falkenberg Rhodomelaceen, p. 682; Okamura Alg. Jap. Exsic., Fasc. II, No. 69; 岡村, 日本藻類名彙, p. 232.

Plants are gregarious, forming irregularly roundish or transversely stretched patches. Fronds are of hollow bodies, obovate or pyriform in shape, standing with short, solid and cylindrical pedicels which arise singly or subfasciculately from creeping rhizome, and attain the height of about 1 cm. The rhizomes are cylindrical, scarcely 1 mm. in thickness, and branch out without any definite order. They are closely attached to substratum by emitting at first hair-like, afterward more thickened, root-fibres. They send off branches upward, the apical portion of which swells up at the beginning into a minute globular ball (Fig. 15). As the ball grows larger and larger, it becomes obovate or pyriform, being excavated within like a bladder (Fig. 2). The apex of ball is round, and, when young, slightly depressed.

The pedicels of balls are very slightly narrowed at the neck and are solid, internally consisting of parenchymatic cells. The structure of pedicel is the same as that of rhizome. In the centre, there passes a slender axis which is surrounded by 5 pericentral cells of equal length (Figs. 6, 10). Around the pericentral cells, there are some layers of densely packed parenchymatic cells which are covered by an epidermal layer. The intercellular spaces between the axis and the pericentral cells as well as those outside of the latter are

filled up with rhizoid cells. The latter are elongated or roundish and branch in various directions, forming a reticulation around the parenchymatic cells. Often they send off branches into the free space of the cavity of ball. They are connected with the axial, the pericentral, and the remaining cells by so-called pit-formation. Thus, the rhizomes and the pedicels of the balls are densely constructed, not presenting any loosening of the tissue.

When the ball is very small, its inner tissue is solid, only presenting minute intercellular spaces. As it grows larger and larger, it becomes excavated within, and through the centre of the cavity the median axis passes longitudinally. Here, the axis is very conspicuous, it being composed of elongated cylindrical cells. Beneath the articulations the axial cells are slightly swollen, and from that part 5 pericentral cells are usually emitted in a verticillate manner. The pericentral cells in this part are very much elongated into slender filiform cells which are stretched out in a horizontal direction. They are emitted in the upper articulations of the axis almost in the same level, but in the lower ones their arrangement becomes more irregular, and not seldom 6 of them are here and there present.

Besides the pericentral cells there arises a slender filament from the shoulder of each axial cell, which forms the basal cell of a "hair-leaf" of German writers. The basal cell of hair-leaf is always situated just above one of the pericentral cells. It is always single on every axial cell and is spirally inserted along the axis. Around the apical cell there are 2 or 3 circles of hair-leaves, when viewed from above. They are soon dropped off, being detached from the swollen extremities of their basal cells which are a little prominent above the cortical layer. Hair-leaves are not seen in the greater part of the ball-like portion; but we may rightly conclude that they have already dropped off, as there are basal cells arising from the axis near the bottom of the cavity. Hair-leaves are many times

dichotomous, and the cells are short when young, but they become much elongated when fully grown, as it is the case with many other plants of this family. In the growing portion of frond the formation of a hair-leaf from its basal cell is well observed. One of the young pericentral cells cut off from an axial cell is divided by a horizontal partition into 2 cells, the upper one of which is differentiated into the hair-leaf. The latter is protruded beyond the surface of frond, and now, a transverse partition is formed in this cell at the same level with surface of that part. By this way, this cell is divided into two, of which the upper one becomes the mother cell of a hair-leaf, while the lower, its basal cell. In the solid portion of frond there is no hair-leaf present.

Mode of growth of the frond is monopodial. Toward the apex of frond, cells of the axial column become much shortened into disc-shaped segments and the apical cell which is slightly prominent is cut off by a horizontal partition.

Each pericentral cell in the swollen portion is plainly connected at its extremity with 4 larger cells which form the innermost layer of the wall of the cavity (Fig. 11). Every one of the latter also cuts off 4 similar but smaller cells which give rise to other 4, and so on. By succession, a thick wall of the cavity is formed in 3 or 4 layers of cells. Near the bottom of the cavity the pericentral cells enlarge toward their extremities in clavate manner and form the innermost layer of the wall, and then give rise to 4 subcortical cells as in the remaining portion. In the globular portion, the longitudinal axis never sends out a branch; but in solid part, the axis often gives off branches. Adventitious branches arise from the sides as well as from the harmed ends of rhizomes and pedicels of balls. In the most part of the globular portion pericentral cells are almost horizontally stretched out; but as they approach toward the apex they are curved downward along the inner wall of the cavity.

The formation of secondary pits is very general and any two cells coming in contact to each other are connected by this way. In the growing portion of frond, pericentral cells lie near to each other, owing to the shortness of cells of the central axis; and two pericentral cells or one pericentral cell and one basal cell of a hair-leaf are united as they come in contact (Figs. 26 and 29). By the elongation of central axis, this secondary connection of pericentral cells or of others are detached, then marking that part by a slightly swollen wall. From those detached parts, sometimes slender structureless filaments of cellulose substance take their origin.

The splitting of layers of cell-walls is of common occurrence. In general, the free side of cells adjacent to the cavity, which are previously much thickened in lamellose structure, is partly peeled off in the form of thin layers. By this way, a pretty large amount of structureless mass, appearing like gelatinous fibres is not seldom accumulated at the bottom of the cavity of the ball.

Tetrasporangia are formed in wart-like or nipple-shaped elongato-ovate stichidia which are situated either solitary or 3-4 aggregated on the upper portion of frond. Very often tetrasporangia are also formed in the ordinary apical portion of frond. The central axis of stichidia is formed as a lateral branch of the basal cell of a hair-leaf in ball-like portion and therefore stichida may be looked upon as secondarily formed branches. Stichidia are slightly narrowed at base as if shortly pediceled, and carry hair-leaves on the apical portion. Tetraspors are formed in the mother cells adjacent to pericentral cells which are slender and horizontally stretched out from the axis. In every segment, they are produced in number and externally protected by two large cover-cells.

Of antheridia and cystocarps I have searched in vain.

Among the materials, I found a few plantlets germinating on the body of mother plant and on shells. They are already grown in.

some length and the youngest I could find was 6-cells-long planlet which stands with a slender root. Of those 6 cells, all except the apical one and the next have cortical cells already cut off. In surface view, the cell just beneath the terminal is not yet divided; but the next has a ring of cortical cells and each of the 3 larger following has 2 zones of cortical cells produced. The primary root-fibre is a simple or jointed tube and expands into a scutate disc. In a little advanced stage, another hair-like root makes its appearance. As the plantlet grows, the arrangement of cortical cells becomes somewhat irregular in older part and newly formed root-fibres run decurrent within the wall of the original root. By this way, original slender root becomes much thicker in age. On the apex, now, minute hair-leaves make their appearance.

Colour of frond is dark purplish-brown and the substance is soft and tenacious, plant firmly adhering to paper in drying.

Hab. : On rocks between tide-marks. Sakaségawa in Amakusa Islands in the Prov. Higo.

The present genus which was established by Zanardini from the materials collected at Borneo was considered by him as one having an affinity with *Chrysymenia* and was placed under the family *Cryptonemiaceae*. Other subsequent writers considered it to belong to the family *Rhodomelaceae*, but the knowledge about its systematic position long remained wanting. I was fortunate enough to study the plant in question with regard to its structure and development, so as to settle the doubt as to its systematic position. Mr. Oishi, the post-graduate student of the Imperial Fisheries Institute was kind enough to put the tolerable amount of the alcohol specimens under my disposal, which he collected at Sakaségawa in the Amakusa Islands, in August, 1902.

From the descriptions just given above, the reader will understand that the plant belongs to the subfamily *Chondrieae* under *Rhodomelaceae*. And the affinity which it shows with *Coeloclonium* and *Chondria* will be beyond any question.

PL. VI, Figs. 1-17. Fig. 1: *Acrocystis nana* Zanard. in nat. state and size.—Fig. 2: portion of frond, $\frac{5}{1}$.—Fig. 3: longitudinal section of ball (semi-diagrammatic), $\frac{5}{2}$.—Fig. 4: portion of the longitudinal section of the wall of ball, $\frac{600}{1}$.—Fig. 5: portion of the cross-section of the wall of ball, $\frac{140}{1}$.—Fig. 6: cross-section of the pedicel of ball, 0.5 mm thick, $\frac{80}{1}$.—Fig. 7: axial and pericentral cells of Fig. 6, to show rhizoid cells between them, $\frac{220}{1}$.—Fig. 8: rhizoid cells between pericentral cells, $\phi, \phi, \frac{220}{1}$;—Fig. 9: bottom of the cavity, showing free extension of rhizoid cells into the cavity; a , axis; $\frac{140}{1}$;—Fig. 10: bottom of the cavity, showing pericentral cells which form the innermost layer of the wall of ball; b , basal cell of a hair-leaf; $\frac{140}{1}$.—Fig. 11: extremity of a pericentral cell uniting with 4 innermost cells of the wall of frond, $\frac{220}{1}$.—Fig. 12 and 13: portion of longitudinal section of cortex showing the division of an infracortical cell into four epidermal cells; a , upper end; $\frac{220}{1}$.—Fig. 14: lower articulations of the central axis in swollen portion; b , basal cell of hair-leaves; pericentral cells 5-6; $\frac{80}{1}$. Fig. 15: young ball, slightly depressed at the apex, $\frac{22}{1}$.—Fig. 16: young root-hair, $\frac{140}{1}$.—Fig. 17: thicker root-filament, $\frac{140}{1}$.

PL. VII, Figs. 18-33. Fig. 18: apex of frond, and circles of hair-leaves seen from above, $\frac{80}{1}$.—Fig. 19: the apical portion of Fig. 18 magd.; v , apical cell; h , basal cell of younger hair-leaves; $\frac{600}{1}$.—Fig. 20: young hair-leaves, $\frac{600}{1}$.—Fig. 21: so-called pit of the axis, $\frac{600}{1}$.—Fig. 22: stichidia, $\frac{5}{2}$.—Fig. 23: cross-section of a stichidium; ϕ , pericentral cell; d , cover-cells; $\frac{220}{1}$.—Fig. 24: longitudinal section of a stichidium; d , cover-cells; $\frac{220}{1}$.—Fig. 25: cover-cells of tetrasporangia seen from above, $\frac{220}{1}$.—Fig. 26: portion of longitudinal

section of frond showing the formation of a young stichidium (with its axis, a' , and hair-leaves, b , b) from a basal cell of a hair-leaf, b , arising from an axial cell, a , of the globular portion of frond, $\frac{390}{1}$.—Fig. 27 apical portion of young stichidium, $\frac{600}{1}$.—Fig. 28: longitudinal section of young stichidium bearing tetrasporangia, t , axis a' , and basal cells of hair-leaves, b , b ; $\frac{390}{1}$.—Fig. 29: apical portion of frond forming tetrasporangia, t , $\frac{220}{1}$.—Fig. 30: free side of a cell of the innermost layer of the ball, showing the splitting of lamellar thickening, $\frac{600}{1}$.—Figs. 31-33: various stages of plantlets, $\frac{220}{1}$, $\frac{91}{1}$, $\frac{140}{1}$, respectively.

Acrocystis Zanardini 1872.

つくしほヽづき属.

CHONDRIAE (RHODOMELACEAE).

やなぎのり亞科(ふじまつも科). •

體ハ匍匐錯綜セル圓柱狀ノ根莖ヨリ直立シ, 單條又ハ分岐セル短カキ圓柱狀ノ莖ヲ有シ, 其上部球狀又ハ卵圓形ニ膨大ス, 内部ハ中空ナリ; 此ヲ其本體トス。根莖ハ中實ニシテ中央ニ一條ノ中軸ヲ存シ, 五條ノ周心管ヲ有シ, 之ヲ圍繞スルニ柔軟組織ヲ以テス。球狀部ハ中空ニシテ, 中央ニ一條ノ中軸ヲ有スレドモ, 此部ノ周心管ハ中軸細胞ト同長ナラズシテ甚シク長キ絲狀ヲナシ, 且ツ中軸細胞ノ上部ノ節ノ附近ヨリ略ボ水平ニ輪生シ, 其先端四個ノ細胞ニ結ビ, 以テ體壁ノ最内層ヲナス; 此ヨリ後此細胞各又數回四個ニ分裂シテ, 以テ, 上皮ヲナス。又周心管ノ出ル近所ヨリ, 此ト同様ニシテ稍細キ細胞ヲ各中軸細胞ヨリ一條宛發出ス; 此モノハ球狀部ニ於テ殊ニ能ク認ルヲ得。此細胞ハ毛狀葉ノ基礎トナルモノニシテ體ノ表面ニ達シ, 其上部ニ毛狀葉ヲ着ク; 故ニ之ヲ毛基細胞ト稱ス。毛狀葉ハ屢々叉狀ニ分岐シ, 體ノ頂端附近ノ外ハ既ニ早落シテ復タ存スルコトナシ。體ノ伸長ハ單基成長ニシテ, 成長點ハ水平ナル分裂面ヲ以テ其直下ノ細胞ヨリ分裂

ス,—四分胞子囊ハ球狀部ノ頂部ノ附近ヨリ生ズル乳頭狀突起ノ如キ胞子托ニ生ジ,三角錐狀ニ分裂シテ二個ノ大ナル蓋細胞ヲ以テ蔽ハル. 囊果ハ詳ナラズ.

此屬ハ Borneo ノ沿岸ニテ採集シタル標品中ヨリ Zanardini 氏ガ發見シテ一千八百七十二年ニ新ニ設ケタル屬ナリシガ, 氏ハ當時之ヲ Chrysymenia 屬ト親シキ類縁ヲ有スルモノト思考シテ Cryptonemiaceae 中ニ收メタリ. 其後二三ノ學者ハ其所屬ノ科ノ該當ナラザルヲ正シテ之ヲふちまつも科中ニ配シタリト雖モ, 今日マデ其果シテ何レノ屬ト近縁ノモノナルカヲ確ムルコト能ハズ; 隨テ之ガ分類上ノ位置ハ疑問トシテ存シタリキ. 然ルニ, 予ハ幸ニ此問題ヲ解決スルコトヲ得タルハ予ノ深ク悅ブ處ニシテ, 又實ニ大石芳三氏ノ好意ニ負フ處多シトス. 氏ハ明治三十五年八月天草島坂瀬川村ニ於テ此植物ヲ採集シ, 其多量ナル「アルコール」標品ヲ携ヘ歸リテ之ヲ予ノ研究ニ委シタリ. 是ニ依テ予ハ其構造ヲ知悉スルコトヲ得タリ; 後明治三十六年予モ亦同所ニ自カラ之ヲ採集セリ. 此研究ニヨリテ, 予ハ之ヲふちまつも科ニ置クノ正當ナルヲ確メ, 且ツ其 Chondria (やなぎのり屬) ト Coeloclonium 屬トニ最モ近キ類縁ヲ示スモノナリト斷定セリ.

Acrocystis nana Zanard.

つくしほゝづき 岡村稱.

第 VI-VIII 圖版.

本植物ハ簇生シ, 不規則ナル圓形又ハ横ニ擴ガレル叢ヲナス. 體ハ倒卵形又ハ梨子狀ニシテ中空, 短カキ圓柱狀ノ莖ヲ以テ直立シ, 莖ハ匍匐セル根莖ノ如キ部分ヨリ單獨ニ又ハ稍束狀ニ分歧シテ出デ, 莖並ニ根莖トモ中實ナリ; 高サ凡 1 cm. アリ. 根莖ハ約 1 mm. ノ太サアル圓柱狀ノ枝ニシテ一定ノ規則ナク分枝シ, 始メハ毛ノ如ク, 後稍太クナレル根ヲ以テ岩石ニ固着ス. 根莖ヨリ上

方ニ出ル枝ノ先端ハ始メ小ナル球狀ヲナシテ膨大シ(15圖),後漸ク大ナルニ從テ倒卵形乃至梨子狀トナリ, 内部ハ空虚トナル(2-3圖). 球ノ頂端ハ圓クシテ幼時ハ少シク凹ム.

球ノ柄ハ其頸部ニ於テ少シク細クナリ, 中實ニシテ, 内部ハ柔軟細胞ヨリ成ル; 而シテ此部ノ構造ハ根莖ト同様ナリ. 即チ, 先づ中央ニ一條ノ細キ中軸アリテ五條ノ周心管ヲ以テ圍ミ, 周心管ハ中軸細胞ト同長ナリ(6,10圖). 周心細胞ノ周圍ニハ密ニ充實セル數層ノ柔軟細胞アリテ, 遂ニ一層ノ皮層細胞ヲ以テ蔽ハル. 中軸ト周心細胞トノ間ニアル細胞間空隙並ニ周心細胞以外ノ部分ニアル細胞間空隙ハ小サキ圓キ細胞(之ヲ根様細胞ト云フ)ヲ以テ充タサル. 根様細胞ハ稍長キモアリ又圓キモアリテ各方面ニ枝ヲ出シ, 周心管ノ周圍ニ網狀ヲナス; 此細胞ハ又往々, 球狀部ノ内部ニモ枝ヲ出スコトアリ. 根様細胞ハ中軸細胞, 周心細胞及ビ其他ノ細胞ト所謂連絡點ヲ形成シテ連絡ス. 斯クシテ, 根莖及球狀部ノ莖ハ緻密ナル構造ヲ有シ, 少シモ組織ノ弛緩スルコトナシ.

球狀部ノ幼ナルヤ, 内部ノ組織ハ中實ニシテ只小ナル空隙ヲ存スルノミナリ. 然レドモ, 其漸ク大ナルニ至ルヤ, 内部ハ中空トナリ, 中央ニ縱走スル一條ノ中軸アルヲ見ル. 此部ノ中軸ハ殊ニ明ニシテ長キ圓柱狀ノ細胞ヨリ成ル; 而シテ其結節部ノ下ニ中軸細胞ハ少シク膨レ, 此膨レタル部分ヨリ五條ノ周心管ハ通常輪狀ヲナシテ出ヅ. 此部ノ周心細胞ハ甚長クシテ細キ絲狀ノ細胞トナリ, 水平ノ位置ヲ取ル; 而シテ軸ノ上部ニテハ略ボ同一ノ高サヨリ出レドモ, 下部ヨリ出ルモノハ其配置不規則トナリ, 往々六條ノ周心細胞ヲ存スルコト稀ナラズトス.

周心細胞ノ外, 別ニ又, 各中軸細胞ノ肩ノ所ヨリ一條ノ細キ絲狀細胞ノ出ルアリ; 此モノハ毛狀葉ノ基礎トナルモノナリ(以下單ニ毛基細胞ト記ス). 毛基細胞ハ常ニ何レカーノ周心細胞ノ直グ上ノ所ヨリ出ヅ, 而シテ此モノハ各中軸細胞ヨリ常ニ必ズ一條ヲ出シ, 中軸細胞ノ周圍ニ螺旋狀ニ配置セラル. 頂細胞ノ周圍ニハ之

ヲ上ヨリ見下ロストキハ、毛狀葉ノ二重乃至三重ニ環狀ニ列セルアリ。毛狀葉ハ早落シテ毛基細胞ノ膨レタル頂端ヲ殘スノミ、而シテ其膨レタル部分ハ皮層ノ表面ニ達ス。毛狀葉ハ球狀部ノ大部分ニハ見ル能ハザレドモ、吾人ハ之ヲ以テ其既ニ落チタルモノナリト判ズルヲ得ベシ；蓋シ球狀部ノ内底ニ近キ中軸ヨリモ毛基細胞ノ生ズルモノアレバナリ(10圖)。毛狀葉ハ數回叉狀ニ分岐シ、始メハ短カケレドモ、充分成長スルトキハ長シ。毛基細胞ヨリ毛狀葉ノ形成セラル、方法ハ體ノ成長部ニ於テ能ク見ルコトヲ得；即チ一ノ中軸細胞ヨリ切り離サレタル幼キ周心細胞ノ一ハ水平ノ分裂面ニヨリテ二ノ細胞トナリ、其上部ノモノハ毛狀葉ニ變ズ(VII圖版26-27圖).此細胞ハ體ノ表面ヨリ外部ニ突出シ、次ニ體ノ表面ト同ジ列ノ所ニテ一ノ横膜ヲ以テ二個ニ分タレ、其上部ノモノハ毛狀葉トナリ、下部ノモノハ毛基細胞トナルナリ。

體ノ伸長ハ單基的成長法ニヨル。體ノ頂端ニ近ヅクヤ、中軸細胞ハ甚シク短クナリテ盤狀ヲナシ、頂細胞ハ少シク上部ニ突出シ水平ノ分裂面ヲ以テ他ノモノヨリ分タル。

球狀部ノ各周心細胞ハ其末端明ニ四個ノ大ナル細胞ト連リ以テ其部ノ體壁ノ最内層ヲナス(11圖)。此各細胞ハ又同様ナル四個ノ細胞ヲ分裂シ、其各細胞更ニ又小ナル四個ノ細胞ヲ分裂ス；以下之ニ準ズ。斯クシテ順次ニ三四層ノ細胞相重疊シテ體ノ厚キ壁ヲ成ス。空虛部ノ下部ニ近キ所ニテハ周心細胞ハ其末端根棒狀ニ膨大シ、以テ體壁ノ最内層ヲ形成シ、之ヨリ他ノ部ニ於ケルト同ジク四個ノ皮下細胞ヲ分裂ス。球狀部ニテハ中軸ハ決シテ枝ヲ出サレドモ、中實ナル部分ニアリテハ中軸ヨリ往々枝ヲ生ズ。副枝ハ根莖及柄(球狀部ノ)ノ側面並ニ害ヲ蒙リタル所ヨリ出ヅ。球狀部ノ大部分ニテハ周心細胞ハ殆ド水平ニ出レドモ、漸ク頂端ニ近ヅクニ從テ内壁ニ沿フテ下方ニ灣曲ス。

第二連絡點ノ形成ハ普ク存スル處ニシテ、何レノ細胞ニテモ二個相接觸スルトキハ直ニ此ヲ形成シテ相互ニ連絡ス。體ノ成長

點附近ニテハ、中軸細胞ノ短キ爲メ、周心細胞ハ互ニ近ク接シ、之ガ爲ニ二個ノ周心細胞又ハ一個ノ周心細胞ト一個ノ毛基細胞トノ如キモノガ連絡スルコトアリ(26, 29 圖)。中軸細胞ノ伸長スルトキハ周心細胞又ハ他ノ細胞ニ於ケル第二ノ連絡ハ離レ、其離レタル場所ハ細胞膜ノ少シク膨レタルニ依テ知ルヲ得ベシ。此等ノ離レタル部分ヨリ、時トシテハ、別段構造ノナキ「セルローゼ」質ノ絲状物ヲ生ズルコトアリ。細胞膜ノ層ノ剥離スルコトモ亦普通ノ現象ナリ。一般ニ、空所ノ方ニ面スル細胞ノ游離面ハ層々相重リテ其膜厚ク、此層ハ後薄キ層トナリテ剝脱ス。斯クシテ往々球狀部ノ内ニ、別ニ構造ナキ粘質纖維ノ如キ塊ノ堆積スルコト稀ナラズトス。

四分胞子囊ハ瘤狀又ハ乳頭狀ヲナセル長卵形ノ四分胞子托中ニ形成セラレ、托ハ體ノ上部ニ、單獨ニ又ハ三四個集リ生ズ。四分胞子囊ハ又往々體ノ頂部ニ形成セラル、コトアリテ、其部ハ特ニ形狀ヲ變ズルコトナク常態ヲナス。四分胞子托ノ中軸ハ球狀部ニ在ル毛基細胞ノ側面ニ生ズル枝トシテ形成セラル；此故ニ四分胞子托ハ第二ニ(即チ後生的ニ)形成セラレタル枝トシテ者フルヲ得ベシ。胞子托ハ基部少シク細クナリテ恰モ短キ柄ヲ有スル如ク、頂部ニ毛狀葉ヲ有ス。四分胞子囊ハ托ノ中軸ヨリ水平ニ發出セル細キ周心細胞ニ接シテ生ズル母細胞中ニ生ズ；而シテ各部ニ多數ニ形成セラレ、外部ハ二個ノ大ナル蓋細胞ヲ以テ蔽ハル。

精子器及囊果ハ之ヲ詳ニセズ。

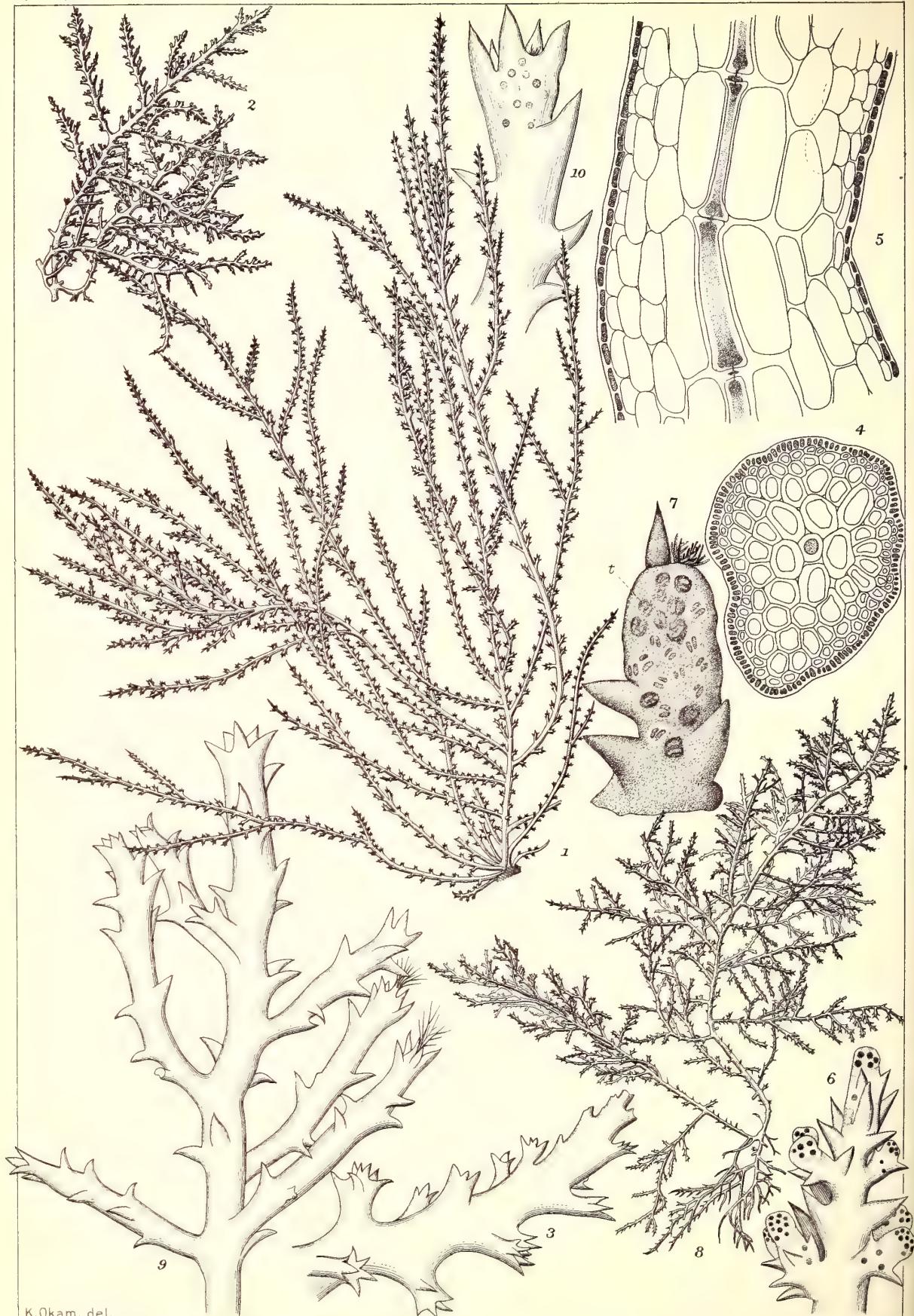
材料中、母體ノ上並ニ介殼上ニ發生シタル數固ノ嫩植物ヲ發見セリ。此等ハ既ニ幾分伸長セルモノニシテ、予ノ發見シ得タル最モ幼キモノ(31 圖)ハ六個細胞ヨリ成レル長サヲ有シ、細キ根ヲ以テ立テリ。此六個細胞中、頂細胞ト其次ノモノトヲ除キテハ、他ハ皆皮層細胞ヲ分裂セリ。之ヲ表面ヨリ見ルニ、頂細胞ノ直下ノ細胞ハ未ダ分裂セズ、然レドモ其次ノモノハ一列ノ皮層細胞ヲ作リ、次ノ大ナル三個細胞ハ各々二列ノ皮層細胞ヲ作レリ。始原ノ根ハ單管又ハ關節セル管狀根ニシテ、其先端吸盤ノ如ク開展ス；

其少シク發育シタルモノニアリテハ、他ノ毛狀ノ根ヲ生セルモノアリ。嫩植物ノ成長スルニ從ヒ、皮層細胞ノ配置ハ老成セル部分ニテハ稍不規則トナリ、新ニ形成セラレタル根ハ元ノ根ノ細胞壁中ヲ下走ス；斯クシテ原來細カリシ根ハ齡ト共ニ太クナルナリ。嫩植物ノ頂端ニハ小サキ毛狀葉漸次現出ス。

體ノ色ハ暗赭褐色ニシテ、體質ハ軟ク強韌ナリ；乾燥スルトキハ臺紙ニ固着ス。

第 VI 圖版, 1-17 圖。1: つくしほづきノ自然ノ狀態、自然大。—2: 體ノ一部、 $\frac{5}{1}$ 。—3: 球狀部ノ縱斷、 $\frac{52}{1}$ 。—4: 球狀部ノ體壁ノ縱斷面ノ一部、 $\frac{600}{1}$ 。—5: 同上ノ橫斷面ノ一部、 $\frac{140}{1}$ 。—6: 球狀部ノ柄ノ橫斷面、0.5 mm. 太シ、 $\frac{80}{1}$ 。—7: 第 6 圖ノ中軸及周心細胞ニシテ、其間ニ根樣細胞アルヲ示ス、 $\frac{220}{1}$ 。—8: 周心細胞、 p, p 、ノ間ニ根樣細胞アルヲ示ス、 $\frac{220}{1}$ 。—9: 球狀部ノ内底ヘ根樣細胞ノ一端伸ビ出タルモノ；a, 中軸； $\frac{140}{1}$ 。—10: 球狀部ノ空所ノ下部ニ於テ、周心細胞、 p 、ガ體壁ノ最内層ヲ形成スルモノ；b, 毛基細胞； $\frac{140}{1}$ 。—11: 周心細胞ノ末端四個ノ細胞ト結ビ、以テ體壁ノ最内層ヲ形成スルモノ、 $\frac{220}{1}$ 。—12-13: 皮下層ノ細胞四個ノ皮層細胞ヲ形成スルモノ；a, 上部； $\frac{220}{1}$ 。—14: 球狀部ニ於ケル中軸ノ下部ノ細胞；b, 毛基細胞；周心細胞ハ 5-6 條アリ； $\frac{80}{1}$ 。—15: 幼キ球狀部ニシテ、其頂端少シク凹ミタルモノ、 $\frac{22}{1}$ 。—16: 幼キ毛狀根、 $\frac{140}{1}$ 。—17: 稍太キ根、 $\frac{140}{1}$ 。

第 VII 圖版, 18-33 圖。18: 體ノ成長點ト毛狀葉ノ環狀ニ列セルトヲ上ヨリ見タルモノ、 $\frac{80}{1}$ 。—19: 第 18 圖ノ頂端ノ部分ヲ廓大シタルモノ；v, 頂細胞；h, 幼キ毛狀葉及毛基細胞； $\frac{600}{1}$ 。—20: 幼キ毛狀葉、 $\frac{600}{1}$ 。—21: 中軸ノ原形質連絡、 $\frac{600}{1}$ 。—22: 四分胞子托、 $\frac{52}{1}$ 。—23: 四分胞子托ノ橫斷面；p, 周心細胞；d, 蓋細胞； $\frac{220}{1}$ 。—24: 四分胞子托ノ縱斷面；d, 蓋細胞； $\frac{220}{1}$ 。—25: 四分胞子囊ノ蓋細胞ヲ上ヨリ見タルモノ、 $\frac{220}{1}$ 。—26: 體ノ縱斷面ノ一部ニシテ、體ノ球狀部ノ中軸、a, ヨリ毛基細胞、b, ヲ生ジ、更ニ之ヨリ胞子托ノ形成スルヲ示ス；a'ハ胞子托ノ中軸；b, b'ハ其毛狀葉； $\frac{390}{1}$ 。—27: 幼キ胞子托ノ



Acanthophora orientalis J. Ag., とげのり, Fig. 1-7.
Acanthophora muscoides Bory, ことげのり, Fig. 8-10.

頂部。 $\frac{600}{1}$.—28: 幼キ胞子托ノ縦斷面; t , 四分胞子囊; a' , 中軸; b, b' , 毛基細胞; $\frac{390}{1}$.—29: 體ノ頂部ニ四分胞子囊, t , ヲ形成シタルモノ; $\frac{220}{1}$.—30: 球狀部ノ最内層ノ細胞ノ游離面ニシテ, 厚成層ノ剝離スル状; $\frac{600}{1}$.—31-33: 嫩植物ノ種々ノ發育狀態; 31: $\frac{220}{1}$; 32: $\frac{94}{1}$; 33: $\frac{140}{1}$.

Acanthophora orientalis J. Ag.

Nom. Jap.: *Togé-nori*.

PL. VIII, Figs. 1-7.

Acanthophora orientalis J. Ag. Sp. Alg., II, p. 820; Kuetz. Tab. Phyc., Vol. XV, p. 27, Tab. 77; Asken. Algae in Forschungsreise S. M. S. "Gazelle," 1888, p. 46; De Toni Syll. Alg., Vol. IV, p. 822.

Hab.: On rocks near high tide and probably between tide-marks; Riukiu, Hiuga.

PL. VIII, Figs. 1-7. Fig. 1: fully grown plant bearing tetrasporangia (from Riukiu), $\frac{1}{1}$.—Fig. 2: sterile frond, $\frac{1}{1}$.—Fig. 3: portion of a branch, $\frac{11}{1}$.—Fig. 4: cross-section of branch, $\frac{91}{1}$.—Fig. 5: portion of longitudinal section of branch, $\frac{91}{1}$.—Fig. 6: portion of tetrasporiferous branch, $\frac{17}{1}$.—Fig. 7: portion of a stichidial ramulus, showing tetrasporangia and cover-cells, $\frac{54}{1}$.

Acanthophora Lamouroux 1813.

とげのり属.

RHODOMELACEAE. ふぢまつも科

體ハ直立, 圓柱狀ニシテ各方面ニ分枝シ, 細クシテ長キ或ハ太クシテ密集セル枝ヲ有ス; 枝條ハ全部或ハ只一部ノミ短キ圓錐

形ノ刺ヲ有ス；刺ハ互生ニシテ螺旋狀ニ配列シ，時トシテハ單ニ圓キノ如キ或ハ小サキ突起ノ如キモノト成リルコトアリ。斯ノ如キ刺ノ腋ヨリ枝條ヲ發出シ，枝ハ往々密集ス。體質ハ軟骨様ニシテ，柔細胞組織ヨリ成ル。一條ノ中軸ハ密着セル五條ノ周心管ヲ以テ圍繞セラレ，其外部ハ緻密ナル柔軟細胞組織ヨリ成レル皮部ヲ以テ蔽ハル；而シテ皮部ノ細胞ハ内部ノモノ程大ニシテ，外方ニ小ナリ。成長點ハ只僅ニ外面ニ挺出シ，時トシテハ頂端ノ小ナル窪ミノ中ニ存ス。毛狀葉ハ只成長點付近ニ於テノミ單獨ニ存シ，多クハ只頂端成長ノ止マザル前並ニ生殖器ノ發生スルニ當リテ形成セラル；而シテ，始メ毛狀葉トナルベカリシモノガ強盛ニ發育シテ，厚ク皮層ヲ被リタル刺又ハ稍小形ナル庵狀突起ノ如キモノニ變ズルコトアリ；且ツ刺ノ腋ヨリ出ル枝ニアリテハ，其伸長スルニ際シ，其基部ニ於テ恰モ苞ノ如クナリシ刺モ亦其枝ノ伸長スルト共ニ上方ニ移動セラル。——四分胞子囊ハ密集セル小サキ側枝ニ生ジ，其枝ハ時ニハ刺ヲ有スルコトナク，時ニハ之ヲ存シテ，多數密集スルコト稀ナリトセズ。此等四分胞子托ハ其全部ニ或ハ只其上部ノ膨レタル部分ノミニ胞子ヲ發生シ，概予多數ノ胞子囊ヲ存ス；胞子ノ出來方及ビ蓋細胞等ハやなぎのり屬(Chondria)ニ同ジ。精子器モ亦やなぎのり屬ニ於ケルト同シ。胎原ハ長ク伸ビタル枝ノ頂端附近ニ形成セラレ，幼キ刺ノ基部ニ於テ，個々其上側ニ坐ス。囊果ハ卵形ニシテ廣キ底面ヲ有シ，一ノ刺ノ基部ノ上側ニ坐ス；此刺ハ往々下方ニ反曲スルコトアリ。

模範トスペキ種ハ *Acanthophora Thierii* Lamour. ニシテ專ラ太西洋熱帶部ニ生ズレドモ，此他約五種アリテ，何レモ多少變化シ易ク，隨テ互ニ其差異ヲ知ルニ易カラズトス；而シテ，皆諸所溫暖ノ海ニ產ス。本邦ニハ下記ノ二種アリ。

Acanthophora orientalis J. Ag.

とげのり 岡村稱.

第 VIII 圖版, 1-7 圖.

體ハ細キ圓柱狀ニシテ, 小灌木狀ヲナシ, 叢生シ直立ス, 高サ 20 cm. ニ達シ, 太サ 1 mm. アリ, 莖枝ノ別ナク羽狀ニ分岐シ, 枝並ニ短キ小枝ヲ密ニ羽狀ニ存ス. 刺ハ一トシテ單一ナルモノナク, 小枝ハ極メテ短クシテ, 下部ニ刺ナク, 頂端多數ニ分開シ宛モ掌ヲ開キタルガ如シ; 刺ノ幼キモノハ細尖ナレドモ稍長ジタルモノハ圓錐狀ヲナス.—四分胞子托ハ小枝ノ頂部ノ稍半球狀ニ膨レタル部分ニシテ, 其所ニハ刺ナケレドモ, 下部ニハ一個若クハ數個ノ刺ヲ存シ, 宛モ苞ノ如キ觀ヲ呈ス. 囊果ハ小枝ノ頂端ノ周圍ニ坐シ, 卵形ニシテ, 壺狀ヲナス. 質稍多肉ナレドモ, 乾燥スルトキハ紙ニ附着セズ; 暗紫紅色ナリ.

產地: 高潮線附近ノ岩石ニアリテ干潮ニハ乾燥セル如キコトアリ, 其以下ノ深所ニモアラン. 目伊津(日向), 琉球, 柏島(土佐).

分布: 大平洋ノ熱帶及亞熱帶部; 南洋諸島, 濱洲, フヒリツビン島.

本種ハ太西洋熱帶部ニ普通ナル *A. Thierii* Lamour. ト酷似シ, 四分胞子ナキ體ニテハ殆ド之ト區別スル能ハザレドモ, 體ノ稍纖細ナルヲ以テ異ナリトス; 其最モ著シキ差異ハ四分胞子托ニアリテ, 本種ノモノハ小枝ノ頂部稍膨大シ, 其部ニ刺ナケレドモ, *A. Thierii* ノモノハ別ニ斯ノ如キ膨レタル所ナクシテ, 只常ノ如キ小枝ノ頂部ニ四分胞子囊ヲ生ジ刺ニテ圍マルハ以テ異ナリトス. 本邦ニハ *A. Thierii* ナシ.

第 VIII 圖版, 1-7 圖: 1: 四分胞子囊ヲ熟シタル體ノ充分成長シタルモノ(琉球產), $\frac{1}{1}$.—2: 實ナキモノ, $\frac{1}{1}$.—3: 枝ノ一部ニシテ刺ヲ示ス, $\frac{1}{1}$.—4: 枝ノ横斷面, $\frac{9}{1}$.—5: 枝ノ縱斷面ノ一部, $\frac{9}{1}$.—6: 四

分胞子囊ヲ有スル枝ノ一部, $\frac{1}{1}$ —7: 四分胞子托ノ如キ部分ヲ廓大シテ, 胞子ト蓋細胞トヲ示ス, $\frac{54}{1}$.

Acanthophora muscoides (L.) Bory.

Nom. Jap.: *Ko-togé-nori*.

PL. VIII, Figs. 8-10.

Acanthophora muscoides Bory, Coqu. No. 51; Kuetz. Sp. Alg., p. 859; Id. Tab. Phyc., XV, t. 77; J. Ag. Sp. Alg., II, p. 816; De Toni Syll. Alg., IV, p. 818.—*Fucus muscoides* L. Sp., Pl. II, p. 1630.—*A. Delilei* Harv. Ner. Bor. Amer., II, p. 18.—*Chondria ramulosa* Lindenb. in Kuetz. Sp. Alg., p. 858.

Hab.: Probably in deeper waters; Prov. Bōshyū and Sagami, Kugami (Prov. Inaba.)

PL. VIII, Figs. 8-10. Fig. 8: sterile frond of *Acanthophora muscoides*, $\frac{1}{1}$.—Fig. 9: piece of branch, $\frac{1}{1}$.—Fig. 10: portion of a ramulus bearing tetrasporangia, $\frac{2}{1}$.

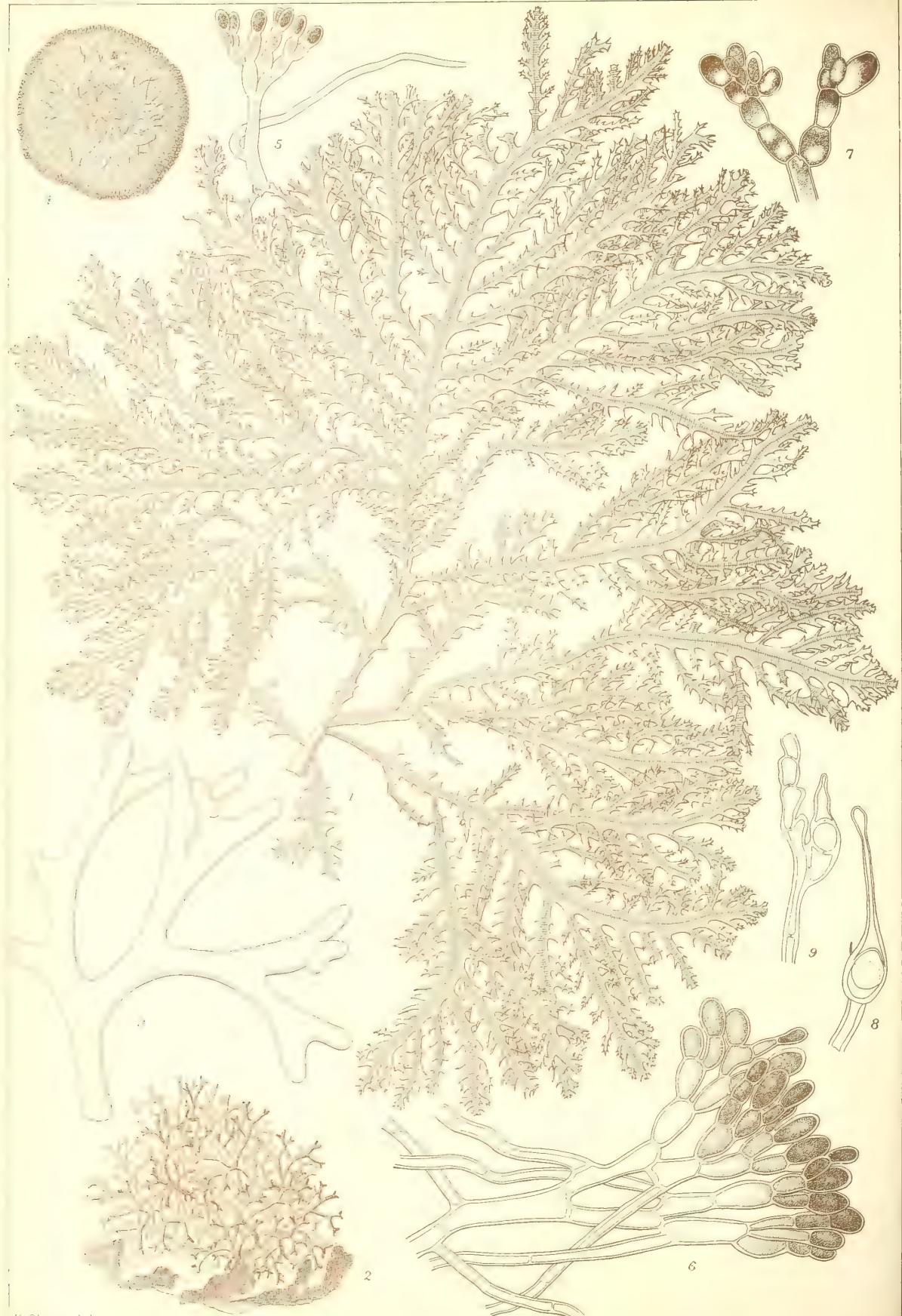
Acanthophora muscoides (L.) Bory.

ことげのり 岡村稱.

RHODOMELACEAE. ふちまつも科.

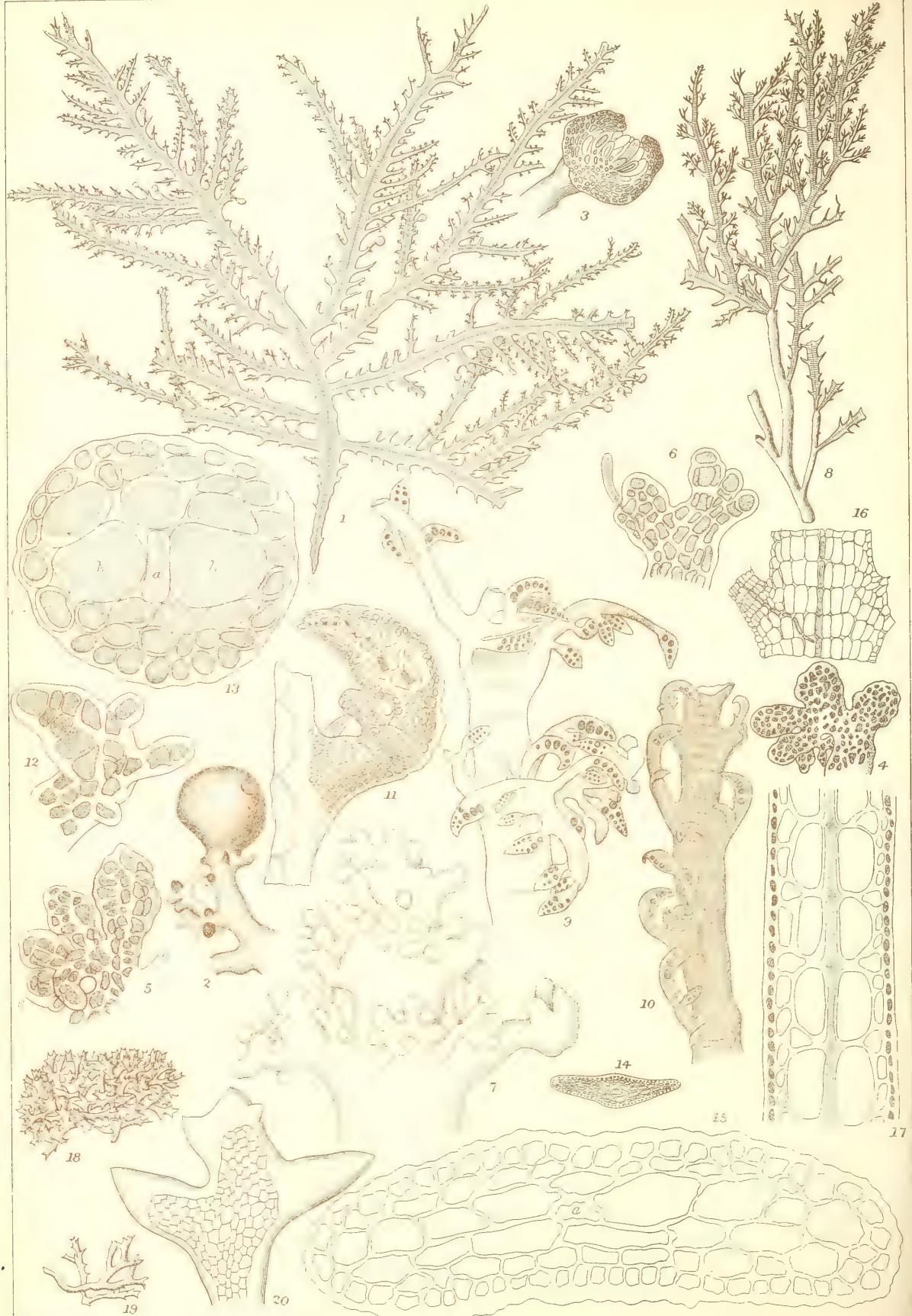
第 VIII 圖版, 8-10 圖.

體ハ細キ圓柱狀ニシテ錯綜セル絲狀根ヨリ直立シ, 小灌木狀ヲナシ, 莖ト枝トノ區別明ナラザレドモ, 主枝稍挺出シテ三角錐狀ニ分歧シ, 屢々密ニ羽狀ニ分枝ス; 高サ 10-20 cm. ニシテ罕ニ 30 cm. ニ達シ, 太サ僅ニ 1-1.5 mm. 過ギズ. 枝ハ廣開シ, 全部細刺ヲ被ムル. 刺ハ單一ニシテ廣開シ, 廣キ基部ヲ有スル圓錐狀ニシテ長ク, 尖リ, 其長サト基部ノ太サト略ボ同ジク, 老成セルモノハ更ニ廣開シ, 或ハ水平ニ出デ, 或ハ反卷シ, 其長サ基部ノ太サト同ジカラザルニ至ル. 小枝ノ頂端ハ恰モ掌ヲ開キタル如ク分開シテ尖リ, 單一ナル刺ト小枝ト



K Okam. del

Enantiocladia latiuscula (Harv.) Okam., あいそめぐさ, Fig. 1.
Nemalion pulvinatum Holmes, かもかじらのり, Fig. 2-9.



K. Okam. del.

Enantiocladia latiuscula (Harv.) Okam., あいそめぐさ, Fig. 1-17.
Hypnea pannosa J. Ag., こけいぢら, Fig. 18-20.

平等ニ出デ、略ボ螺旋狀ニ配置ス；(平等トハ小枝ガ刺ノ腋ヨリ出ルコトナク，互ニ平等ニ離レテ個立スルヲ云フナリ)。——四分胞子囊ヲ有スル小枝ハ別ニ他ノモノト異ナルコトナキ小枝ノ頂部ニ生ジテ，其部ハ少シク膨大シ，刺ヲ被ムルコトアリ又之ナキモアリ。囊果ハ小枝若クハ小サキ枝ノ頂端ノ下ニ坐シテ少サク，一個若クハ多數ノ刺ヲ存シ，卵形ニシテ，其部ノ枝ノ太さヨリモ大ナリ。質柔ク稍多肉ナレドモ，乾燥スルトキハ著シク薄クナリ，紙ニ付着セズ。色暗紫紅色ニシテ，乾燥スルトキハ黒色トナル。

產地：恐ラクハ深處ニ生ズルナルベシ。房洲，相洲（江ノ島，鎌倉），因幡陸上（クガミ）。四分胞子：一晚春。

分布：大西洋熱帶部；アフリカ近海，アスセンション島，プラジル，フロリダ，キーウエスト。

本邦ニハ予ノ知ルニテハ前種ト本種トノ二種アルノミナレドモ，本種ハ體ノ纖細ナルト，刺ノ單一ナルトニ因テ前種ト區別スルコト容易ナリ。

第VIII圖版，8-10圖：8：Acanthophora muscoidesノ實ナキモノ， $\frac{1}{1}$.—9：枝ノ一部， $\frac{1}{1}$.—10：稍四分胞子囊ヲ形成シ始メタル小枝ノ一部， $\frac{2}{1}$.

Nemalion pulvinatum Grun.

Nom. Jap.： *Kamo-kashira-nori*.

PL. IX, Figs. 2-9.

Nemalion pulvinatum Grun., in Holmes New Marine Algae from Japan (Linn. Soc. Journ., Bot., Vol. XXXI) p. 259, Pl. XII, fig. 6.

Frond dwarf, pulvinato-hemispherical, densely branched in irregularly dichotomous manner at short intervals, cylindrical or sub-compressed, with patent axils and obtuse apices, 1-3 cm. high, 0.8-1

mm. thick. Frond consists of longitudinally running medullary filaments which give rise to moniliform, dichotomous filaments of peripheral layer and of rhizoids which run downwards arising from the latter. *Antheridia* are formed as groups of small cells terminating the peripheral filaments. *Carpogonium* is formed from the apical-cell of 3-celled procarpial branch which is formed as a special secondary branch on the base of peripheral moniliform filaments. Colour dark olivaceous-brown fading to yellowish and changing to blackish in drying. Substance subgelatino-cartilaginous, becoming almost horny when dried.

Hab. On rocks at high tide; Nagasaki, Tosa, Kii, Idzu, Sagam. and Bōshyū. Fruit:—late in spring.

PL. IX, Figs. 2-9. Fig. 2: *Nemalion pulvinatum* Grun. in nat. state and size.—Fig. 3: portion of branch, $\frac{5}{1}$.—Fig. 4: cross-section of a branch, slightly magd.—Fig. 5: piece of peripheral filaments and rhizoid, slightly magd.—Fig. 6: portion of the peripheral layer, $\frac{600}{1}$.—Fig. 7: portion of peripheral filament bearing antheridial groups, $\frac{600}{1}$.—Fig. 8: young procarpial branch seen from the dorsal side, $\frac{600}{1}$.—Fig. 9: carpogonium just fertilized, $\frac{600}{1}$.

Nemalion Targioni-Tozzetti 1818.

うみぞうめん属.

HELMINTHOCLADIACEAE. べにもづく科.

體ハ圓柱狀ニシテ, 叉狀ニ分岐シ, 多少柔粘質ナリ. 構造ハ絲組織ヨリ成リ, 中央ニ縦走セル體絲層アリテ, 此絲周圍ニ向テ略ボ水平ニ走リ, 外面ニ近ヅクニ隨テ密ニ叉狀ニ分岐シ, 楕圓形ノ細胞ヲ念珠狀ニ連子タル如キ觀ヲ呈ス; 而シテ皮層ノ絲ヨリ體ノ下方ニ向テ根様絲ヲ發シ, 此絲又體中ヲ縦走ス. 絲ヲ結合スル粘質ハ

可ナリ柔軟ナリ。成長端ハ扇状ヲナセル絲組織ヨリ成ル。——四分胞子囊ハ充分明ナラザレドモ、皮層ノ絲ノ頂部細胞ヨリ生ジ、三角錐形ニ分裂ス(ト稱セラル)。精子器ハ皮層ノ絲ノ上部ノ細胞ヨリ變形シ多數密集ス。胎原列ハ皮層絲ノ側部ニ生ズル特殊ノ短キ枝ニシテ三個細胞ヨリ成リ、其頂部ノ細胞胎心トナル。成胞絲ハ極メテ短キ分岐セル絲ニシテ放射狀ニ發生シ、殆ド球狀ニ密集セル團塊ヲナス；而シテ成胞絲ノ上部ノ細胞ヨリ漸々成熟シテ果胞子ヲ形成ス；胎原列ハ變ジテ成胞絲ヲ支フル柄トナリ、仁ヲ圍繞スル別段ノ組織ナシ。

各所ノ海ニテ明ニ知ラレタルモノハ五、六種ニシテ、他ハ充分明ナラズ、其内一種ハ本邦ニ產ス。下記ノ一種ハ本邦ノ特產ナリ。

Nemalion pulvinatum Grun.

かもかしらのり。

第 IX 圖版, 2-9 圖。

體ハ矮小ニシテ、半球狀ヲナシ、極メテ密ニ不規則ナル叉狀ニ分岐シ、枝ハ圓柱狀又ハ稍扁圓ニシテ廣開シ、鈍頭ニ終ル、高サ 1-3 cm.、太サ 0.81-mm. アリ。質粘滑ニシテ稍硬ク、乾燥スル時ハ角質トナリ、不充分ニ紙ニ附着ス。色暗褐色、乃至黃色ニシテ、乾燥スルトキハ黑色トナル。

產地：高潮線附近ノ岩石ニ叢生ス；長崎、土佐、紀伊、伊豆、相模、房州。囊果：一晚春。

本種ハ寒中ヨリ初夏ニ至ル間盛ニ繁茂シ、晚春實ヲ熟シタル後ハ枯死ス。沿岸ノ民採リテ搗キ、餅トナシテ食フ；いそもち(房州)ノ名アリ。

第 IX 圖版, 2-9 圖。2: かもかしらのりノ自然ノ狀態, 3: 枝ノ

一部, $\frac{5}{1}$ —4: 枝ノ横断面, 廓大.—5: 皮層絲ノ一片ニシテ根様絲ヲ示ス, 廓大.—6: 皮層ノ一部, $\frac{600}{1}$.—7: 皮層絲ノ一部ニ精子器ノ集マレル狀, $\frac{600}{1}$.—8: 幼キ胎原列ヲ背面ヨリ見タルモノ, $\frac{600}{1}$.—9: 方サニ受胎ヲ終ヘタル胎心細胞, $\frac{600}{1}$.

Enantiocladia latiuscula (Harv.) Okam.

Nom. Jap.: *Ai-somé-gusa*.

PL. IX, Fig. 1; PL. X, Figs. 1-17.

Rytiphloea latiuscula Harv. in Gray's List of Jap. Plants, p. 331, No. 4.

Plant solitary, probably arising from a widely spreading disc, with subcylindrical branched stem which is formed by a thick cortication of older basal portion of frond, 10-20 cm. high. Main-branches, many of which arising from the stem, with narrowed bases, broadly linear, 2-3 mm. in breadth, plano-compressed, two to three times pinnate in regularly opposite and distichous manner. Branches patent, standing almost horizontally below, becoming erecto-patent above, with rounded axils. Lower pinnae of main-branches remain more or less short, often reduced to mere deltoid teeth or short pointed branches, the middle ones longest and similarly pinnated, gradually decreasing in length above, so that the ramification is somewhat triangular. Branches of every order are furnished with deltoid teeth which are ultimate branchlets of imperfect growth, and are inrolled at apical portion towards the ventral surface. They are all furnished with faint immersed midrib. Often secondary branches or branchlets proliferate from the ventral surface of frond. All the segments are furnished in their incurved terminal portion with a

longitudinal row of deciduous "hair-leaves" along the median line on the dorsal side, especially visible in young stichidia. The articulations being distinctly seen through the outer coating of the branches, giving them the appearance of being articulated, which when dried seems somewhat transversely wrinkled.

Procarps are transformed from "hair-leaves" situated along the median line on the dorsal side of fertile branchlets, which either arise from the margins or proliferates from the surface of segments bearing them, and as consequence, fertile branchlets become curved in circinate manner. Unfertilized procarps later develop into stunted nipple-like ramelli, and, many aggregating together, ramelli of cystocarpic frond appear curled. *Cystocarps* are globular with a sunken terminal pore, situated on the ultimate pinnulae or pinnellae, which appear like pedicel. *Tetrasporangia* are arranged in double rows in the branchlets transformed into stichidial organs, which form pinnellae of much branched ultimate segment arising from margins or proliferating from the ventral surface and more or less rolled up into ball-like masses. *Substance* somewhat fleshy membranous and the plant does not adhere to paper in drying. *Colour* vinoso-castaneous becoming darker in drying.

Hab.: Washed ashore, probably growing in deep waters.
Prov. Bōshyu, Enoshima in Prov. Sagami; Hakodate (C. Wright).
Fruits :—late in summer.

Explanation of Plates : vid. p. 177.

Enantiocladia Falkenberg 1889.

あいそめぐさ属.

RHODOMELACEAE. ふぢまつも科.

體ハ直立シ, 稍多肉ニシテ扁平ナリ; 多管軸ハ各節毎ニ五個ノ周心管ヨリ成リ, 其對ヲナサル一細胞ハ體ノ腹面ノ側ニ在リ,

其對ヲナセル細胞ハ二個宛中軸ノ兩側ニ存シ，此細胞ト同長同徑ノモノ横ニ列シテ其兩翼ヲ形成シ，斯クシテ二層ノ細胞ヨリ成レル薄キ葉面ヲ作ル；此二層ノモノ早ク既ニ皮層ヲ以テ蔽ハル；皮層ハ内部ノ二層ノモノ、如ク關節スルコトナク，密集セル小細胞ヨリ成リ，薄キ層ヲナス。主枝ハ長ク伸ビテ扁平，頂端ハ體ノ腹面ノ方ニ卷曲シ，兩緣ヨリ枝ヲ對生ス；枝ハ羽狀ニ出デ，其發育ニ強弱アリテ，同ク羽狀ニ分枝ス；而シテ弱者ハ狹細ニシテ著シク濶カラズ，往々只一側面ニノミ小羽枝ヲ發スルコトアリ，其最モ弱小ナルモノハ單ニ厚キ鋸齒ノ如キ狀ヲナスニ止マル。枝ノ生ズル方法ハ内長性ナリ，即チ後生的ニ發生スルモノトス。時トシテハ，各部ノ兩緣ヨリ生ズル枝ノ外，主枝ノ腹面（並ニ背面）ノ中央線ヨリ副出スルモノ或ハ緣邊ノ齒狀部ノ表面ヨリ單獨ニ又ハ集リテ副出スルモノアリ。枝ハ凡テ其屈曲セル頂部ニ於テ，背面ノ中央線ニ沿フテ毛狀葉ヲ存ス；毛葉狀ハ一縱列ヲ作リ，早ク落ツ。——四分胞子囊ハ胞子托ノ如クニ變形シタル最末羽枝ノ上部ニ多數ニ生ズ；此枝ハ概モ多少團集シ，多ク分枝セル細小ナル小枝ニシテ，枝ノ緣邊若クハ表面ヨリ副出ス；而シテ胞子托ハ他ノ小枝ト指シタル差アルニアラズ，只僅ニ異ナルノミ。胎原ハ無柄ニシテ，頂端短ク錐頭ナリ。囊果ハ略ボ球狀ニシテ，果皮厚ク，成胞絲ハ僅ニ穹狀ヲナス。

此屬ハ *Amansia* (ひをとしげさ屬⁽¹⁾) ト *Rytiphloea* 屬トニ極メテ親シキ類縁ヲ有スルヲ以テ往々其何レカニ編入セラル、コトアレドモ，其ノ前者ト異ナル點ハ體ノ内層ヲ造レル二層ノ翼部ガ全體皮層細胞ヲ以テ蔽ハル、コトヲ以テシ，其ノ後者ト異ナルハ枝ノ悉ク對生セルヲ以テス。從來知ラレタルモノ四種アレドモ，本邦下ノ一種アルノミ。

I) *Amansia* (ひをとしげさ屬) ノ性質ハ岡村，日本海藻圖說第五十一頁ニアリ。

Enantiocladia latiuscula (Harv.) Okam.

あいそめぐさ 岡村稱.

RHODOMELACEAE. ふぢまつも科

體ハ單獨ニシテ; 多分圓盤狀ノ付着器ヲ有スルナルベク, 略ボ圓柱狀ノ分枝セル莖ヲ有ス; 莖ハ體ノ老成セルモノハ下部厚ク皮層ヲ生ジテ後變ジタルモノナリ; 10-20 cm. 高シ. 主枝ハ數條莖ヨリ出デ, 基部狹クシテ, 線狀, 扁平, 幅 1.2-3 mm. アリ, 二三回正シク兩緣ヨリ羽狀ニ分岐シ, 對生ス. 枝ハ廣開シ, 下部ノモノハ殆ド水平ニ出デ, 上部ノモノハ稍斜上シ, 腋圓シ. 主枝ノ下部ヨリ出ル羽枝ハ多少短ク, 往々單ニ三角形ノ齒狀ヲナスニ止ルカ或ハ僅ニ 1-2 cm. 長キ尖リタル枝ヲナスノミニシテ, 發育充分ナラズ; 中央部ノモノ最モ長クシテ, 同様ニ羽枝ヲ生ジ, 漸次上部ニ移ルニ隨テ長サヲ減ズ, 故ニ分枝ノ容子ハ稍三角狀ナリ. 各部ノ枝ハ其頂端腹面ノ方ニ卷曲シ, 小枝ノ充分ニ發達セザル爲メ齒狀ヲナセルモノヲ其兩緣ニ着ケ, 微細ナル中肋ヲ存ス. 又往々體ノ腹面ヨリ後生的ニ枝又ハ小枝ヲ副出ス. 中軸及翼列細胞ノ相關節スルモノ皮層ヲ透シテ明ニ見ユルガ故ニ, 體ハ之ガ爲ニ關節シタル如キ觀ヲ呈シ, 其乾燥スルニ當リテハ横ニ皺ヲ生ジタルガ如ク見ニ. ——胎原ハ其之ヲ生ズル枝ノ背面ノ中央線ニ沿フテ存スル毛狀葉ヨリ變ズルヲ以テ, 胎原ヲ有スル枝ハ早蕨狀ニ卷曲ス, 而シテ此枝ハ其之ヲ有スル部ノ兩緣並ニ表面ヨリ生ズ. 受胎セザル胎原ハ後乳頭狀ノ矮小ナル小枝トナリ, 多數相集合スル以テ, 囊果ヲ有スル體ノ最末小枝ハ恰モ小サキ團塊狀ヲナス. 囊果ハ球狀ニシテ頂端ニ少シク凹ミタル如キ果孔ヲ開キ, 小羽枝又ハ最末小枝ニ生ズルヲ以テ, 其小羽枝等ハ恰モ柄ノ如ク見ニ. 四分胞子囊ハ胞子托ノ如ク變形シタル小枝ニ二縱列ニ生ズ, 其胞子托ハ分枝セル小枝ノ小羽枝ニシテ, 其部ノ兩緣若クハ腹面ヨリ發出シ, 多少卷曲シテ小

球塊狀ヲナス。體質稍多肉ナル膜質ニシテ乾燥スルトキハ薄クナリ、紙ニ付着セズ。色葡萄酒ノ如クニシテ暗褐、乾燥スルトキハ黒色トナリ、其紙ト接シタル部分ニ淡キ藍色ヲ染ム。

產地：多分深處ニ生ズルナルベシ。房州江ノ島；箱館(C. Wright)。囊果、四分胞子：八月一十月(江ノ島)。

本種ハ元ト Harvey 氏ガ函館ニテ C. Wright 氏ノ採集シタル標品ニヨリ Rytiphloea latiuscula ト命ジタルモノナレドモ、其 Enantiocladia ニ入ルベキモノナルヲ以テ今此屬ニ配ス。和名ハ臺紙ヲ染色スルニ取レリ。

第IX圖版、I圖。1：あいそめぐさノ實ヲ有セザル體ノ充分發育シタルモノ、 $\frac{1}{1}$ 。

第X圖版、I-17圖。1：囊果ヲ有スル主枝、 $\frac{1}{1}$ 。—2：囊果、 $\frac{22}{1}$ 。—3：囊果ノ縦斷面、 $\frac{22}{1}$ 。—4：胎原及受胎セザル胎原ノ乳頭狀小枝ニ發育シタルモノヲ有スル小枝、 $\frac{91}{1}$ 。—5：同上ノ小枝ノ頂端ヲ廓大シテ胎原ノ初期ヲ示ス；a, b, 小枝ノ外緣； $\frac{175}{1}$ 。—6：胎原ノ受精毛ヲ出シタルモノ、 $\frac{220}{1}$ 。—7：胎原ヲ生ジタル小枝ヲ有スル枝ヲ腹面ヨリ見タルモノ、 $\frac{54}{1}$ 。—8：四分胞子囊ヲ有スル體ノ一部、 $\frac{1}{1}$ 。—9-10：胞子托様ノ小枝及其出ル狀、 $\frac{12}{1}$ 。—11：胞子托ノ一ヲ側面ヨリ見テ、二個ノ蓋細胞アルヲ示ス、 $\frac{91}{1}$ 。—12：胞子托ノ幼者ニシテ其背面ノ中央線ヨリ毛狀葉ヲ生ズル狀、 $\frac{220}{1}$ 。—13：胞子托ノ横斷面；上側ハ腹面ナリ；a, 中軸；b, 周心細胞ニシテ、其枝トシテ四分胞子囊ヲ生ズルモノ；c, c, 蓋細胞； $\frac{220}{1}$ 。—14：枝ノ横斷面；上側ハ腹面、下側ハ背面 $\frac{22}{1}$ 。—15：枝ノ横斷面；上側ハ腹面、下側ハ背面；a, 中軸； $\frac{220}{1}$ 。—16：枝ヲ表面ニ並行ニ縦斷シタルモノニシテ、中軸及翼部ノ細胞ノ關節セル狀ト、左方ニ一ノ側枝ヲ後生的ニ生ジタル狀ヲ示ス、 $\frac{22}{1}$ 。—17：枝ヲ其表面ニ直角ニ切リタル縦斷面ニシテ、中軸ト翼部細胞ノ二層ヨリ成レル狀トヲ示ス、 $\frac{50}{1}$ 。

Hypnea pannosa J. Ag.

Nom. Jap.: *Koké-ibara*.

PL. X, Figs. 18-20.

Hypnea pannosa J. Ag. Sp. Alg., II, p. 453; Id. Epicr., p. 565; Kuetz. Tab. Phyc., Vol. XVIII, tab. 27; De Toni Syll. Alg., IV, p. 482; Askenasy, Forschungsreise "Gazelle" 1888, p. 46; Okam. On the Alg. fr. Ogasawarajima, p. 11 (Bot. Mag. Tokyo, Vol. XI; No. 120, p. 12); 岡村, 日本藻類名彙, p. 41.

Hab.: Ogasawarajima.

PL. X, Figs. 18-20. Fig. 18: portion of frond in nat. state, $\frac{1}{1}$.—Fig. 19: pieces of branch, $\frac{1}{1}$.—Fig. 20: portion of branch showing the central axis, $\frac{1}{1}$.

Hypnea Lamouroux 1813.

いばらのり属.

SPHAEROCOCCACEAE. たまみ科.

體ハ圓柱狀ニシテ, 各方面ニ分岐シ, 概モ短小ニシテ細キ棘狀ノ小枝ヲ以テ蔽ハレ, 細胞組織ニテ成ル; 體ノ中央ニハ多少明ニ關節セル中軸アリ; 内層ハ内部ノ方ホド大ニシテ, 外方ニハ小ナル細胞密ニ相集リテ成リ, 外層ハ薄クシテ小細胞ヨリ成ル; 此細胞ガ體ノ表面ニ直角ニ列セルコトハ明ナラズ. 成長點ハ交互ニ斜ニ關節セル小サキ頂細胞ヲ以テ成ル. 粘質ハ乏シケレドモ, 水ニ浸ストキハ容易ニ柔軟トナル.—四分胞子囊ハ最末ノ小枝ノ一部「スマセシア」状ニ膨レタル皮部ノ中ニ散在シ, 環狀ニ分裂ス. 囊果ハ最末ノ小枝ニ散在シ, 略ボ球狀ヲナシ, 外方ニ膨出ス. 果皮ハ可ナリ

厚ク、多少明ニ形成セラレタル果口ヲ開キ、又往々別ニ果口ヲ開クコトナクシテ、果皮ノ一部ノ細胞宛モ互ニ相離ル、如クナリテ開口スルコトアリ、而シテ緩ク網狀ニ連ナレル絲ヲ以テ果口ト囊果ノ内底トヲ連絡ス。成胞絲ハ囊果ノ殆ド内底ヨリ多數ノ細キ分枝シタル枝ヲナシテ發シ、網狀ヲナセル絲組織ノ間々ニ分レ入り、處々ニテ此組織ト連絡シ、其連絡シタル處ニ小サキ團塊ヲ造ル；此團塊ハ各方面ニ放射セル極メテ短カキ小枝ノ依テ形成スルモノナリ。此短キ小枝ノ頂端ノ細胞順次成熟シテ胞子トナル。

各地ノ稍温キ海ニ產シ二三十種アリ。其殆ド各地ニ普キモノヲ *Hypnea musciformis* (Wulfen) Lamour. トス；大西洋温暖部、印度洋、濠洲及本邦ニ產ス。本邦亦五六種アリ。

Hypnea pannosa J. Ag.

こけいばら 岡村稱。

第 X 圖版、18-20 圖。

岩石、さんごも類等ノ上ニ擴ガリテ叢生シ、5-10 cm. ノ班ヲ作リ、各班稍明ナリ、高サ 2-3 cm. ニシテ、低キ壓シタル如キ叢ヲナス。體ハ甚シク分岐錯綜シテ、枝々互ニ紛亂シ、又互ニ癒着スルヲ以テ、之ヲ分離センニハ勢ヒ小片トナサムルヲ得ザルナリ。枝ハ廣開シ、體ノ下部ニテハ 2 mm. 乃至夫以上距リ、外方ニ近ヅクニ從テ漸次接近シ、其外部ニ近キ枝ハ廣キ基部ヲ以テ圓錐狀ニ尖リタル長サ約 2 mm. 徑 1 mm. 程ノ刺ノ如シ。實ヲ熟スル枝ハ此矮小ナル壓セラレタル如キ叢ヨリ出ルモノニシテ、壓セラレタル叢ノ如キ處ハ中性即チ實ナキ部分トス。叢ヨリ出ル體ハ約 3 cm. ニシテ、太サハ中性ナル部分ノ枝ト同ジク、半以下ハ枝ナク半以上ヨリ杉形ニ分枝ス；枝ハ稍單條又ハ僅ニ羽狀ニ小枝ヲ有ス；小枝ハ圓錐狀ニシテ尖リ、或ハ稍鈍頭、廣開シ或ハ斜上シ、後實ヲ熟スルニ至レバ瘤狀ニ膨ル；

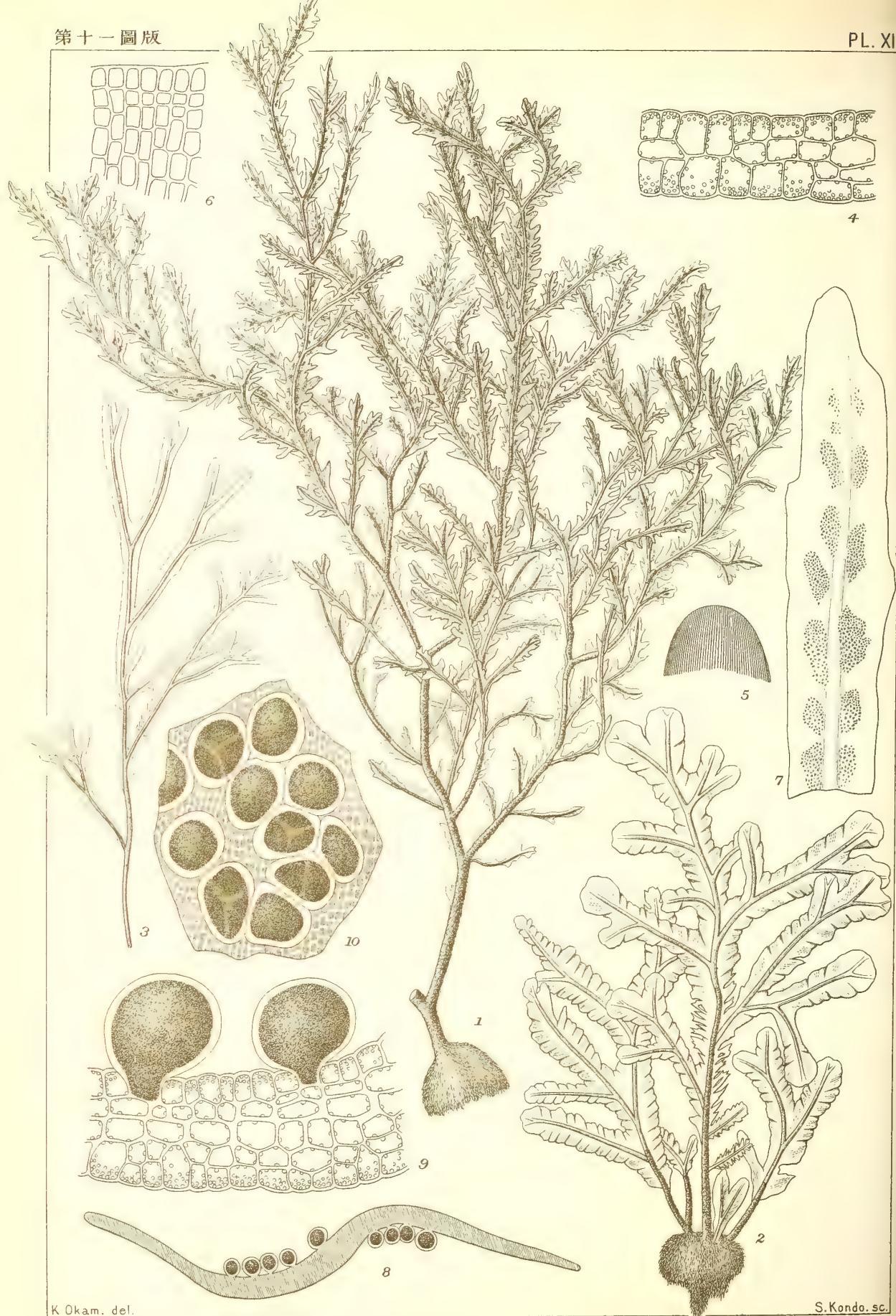
而シテ、或ハ基部ニ近ク一側面ニノミ胞子ヲ生ジ外側ニ膨レ、或ハ頂端下ニ膨レテ其上下ハ細ク、或ハ後ニハ頂部モ基部モ同様ニ胞子ヲ熟スルコトアリ；四分胞子群ハ明ニ他ノ部ト區別スペクシテ彼是相合ースルコトハ罕ナリトス。色ハ紫紅色；質稍多肉ナリ。

產地： 小笠原島。

分布： 大平洋及印度洋、即チ：ガラパゴス島、メキシコ、ニウカレドニア、ビチ島、トンガタブ、モーリシアス。

第X圖版、18-20圖。18：實ヲ熟セザル叢ノ一部、 $\frac{1}{1}$ 。—19：枝ノ片々、 $\frac{1}{1}$ 。—20：枝ノ皮部ヲ削ギテ中軸ヲ示ス、 $\frac{15}{1}$ 。





K. Okam. del.

S. Kondo sc.

Halyseris undulata Holmes.
しばやはづ

3 6 10 8 9 1 5 2 7 4

Haliseris undulata Holmes.

Nom. Jap.: *Shiwa-yahadzu.*

PL XI, Figs. 1-10.

Dictyopteris undulata Holmes New Mar. Alg. from Japan (Linn. Soc. Journ., Bot. Vol. XXXI) p. 251 Pl. VIII, fig. 1.—*Haliseris undulata* Holmes, Okam. Alg. Jap. Exsic. (岡村, 日本海藻標品) Fasc I, No. 41; 岡村, 日本藻類名彙, p. 110.

Root a conical disc covered with brownish hairs. *Fronds*, many arising from the same base, several times irregularly dichotomous with subpinnate segments, 10-25 cm. high. They are, when young, provided with broader, coriaceo-membranous wings which are much undulated and minutely crenulated; when fully grown, the wings become narrower upwards and much lacerated. The breadth of the frond ranges from 10 to 15 mm. in younger plants while from 3 to 7 mm. in older ones. Segments patent, with acute axils, provided with the robust prominent rachis which is stuppe even beyond the middle of the frond. Smaller proliferations are sometimes emitted from the midrib of older segments. In an older frond the lower part becomes a long, subcylindrical stem, while younger ones are shortly stipitate.—*Sori* are formed in dott-like or oblong groups lying close along both sides of the rachis of the upper portion of an older frond, often becoming confluent afterward. *Colour* olive-brown when fresh with pale bluish-green lustre under the water, but fading to deep bluish when exposed to the air and becoming blackish in drying. *Substance* coriaceo-membranous.

Hab. On rocks between tide-marks. Common along the Pacific coast of this country from Taiwan (Formosa) and Riukiu to the Cape Kinkwasan in Prov. Rikuzen; Otaru, Tsushima.

The illustration by Holmes *I. c.* is the young form of this plant. *Haliseris polypodioides* (Desf.) Ag. which is recorded by P. Hariot to have been collected at Yokosuka by Savatier is, I think, this plant, if not *H. latiuscula* Okam. n. sp. mentioned below; also I doubt that species mentioned by v. Martens as from Tschifu (Martens' Die Preus. Exped., Tange, 1866, p. 113). For, *H. polypodioides* is not found to grow in this country while the present plant has a wide range of distribution here.

The affinity of the present plant with *H. polypodioides* is beyond any doubt, chiefly differing from it by the thicker and more blackish lamina (in dried state) and more robust rachis, not taking the densely frilled condition of lamina into account. The present species, on the other hand, so much resembles *Dictyopteris zonarioides* Farlow ms. (Collins, Holden and Setchell's Phycotheca Boreali-Americana No. 581) in its colour of frond, its way of ramification and its robustness of the rachis that I doubt whether they are not one and the same species. Heydrich (Ein. Alg. v. den Loo-choo-Inseln in Ber. der deutsch. bot. gesel. XXV, 1907, p. 102) also states that this undetermined species of *Haliseris* from Riu-ku (which is really a form of the present plant as will be seen below) has a close resemblance with that species. In the system it naturally stand next to *H. polypodioides*.

Of the present plant there are two forms, the northern and the southern. The northern form is that which has just been described while the southern one (i. e. the plant from Taiwan, Riukiu, Kiushyu, Tsushima, etc.) is not so much undulated as the northern. The latter, I shall call *f. plana*.

PL. XL. Fig. 1: Fully grown *Haliseris undulata* Holm. bearing sori, $\frac{1}{4}$.—Fig. 2: young frond, $\frac{1}{4}$.—Fig. 3: portion of young frond bearing narrower wings, $\frac{1}{4}$.—Fig. 4: portion of the cross-section of

the lamina, $\frac{220}{1}$.—Fig. 5: diagrammatic representation of cellular arrangements in the apical portion of a branch, magd.—Fig 6: surface-view of the apex of a branch, $\frac{220}{1}$.—Fig. 7: piece of a branch bearing sori of tetrasporangia, $\frac{5}{1}$.—Fig. 8: cross-section of a branch bearing sori, $\frac{54}{1}$.—Fig. 9: tetrasporangia, $\frac{220}{1}$.—Fig. 10: surface-view of a sorus of tetrasporangia $\frac{140}{1}$.

Haliseris Targioni-Tozzetti 1819?

やはづぐさ属.

DICTYOTACEAE. あみぢぐさ科.

體ハ扁平ニシテ中肋ヲ存シ, 叉状ニ分岐シ, 二層ノ細胞ヨリ成ル; 内層ノ細胞ハ多角形ニシテ其中肋ヲ成セルモノハ密ニ相集リ, 外層ノ細胞ハ稍正方形ニシテ多量ニ色素ヲ含メリ. 體ノ成長ハ枝端ノ細胞放射状ニ列シ, 其分裂ニ依リテ成ル. 即チ成長端ヲナスモノナリ. 胞子ハ體ノ兩面ニ散在ス. 四分胞子ハ稍線状又ハ點状ノ群ヲナシ體ノ兩面ニ生ズ. 精子器モ亦群集ス.

Haliseris ノ名ハ als (海) ト seris (キクヂサ) トヨリ成リ, 枝ノ分岐スル状ニ取レルモノナラン. Lamouroux 氏ノ Dictyopteris (1809), Weber 及 Mohr 氏ノ Neurocaipus (1805), 並 = Stackhouse 氏ノ Polypodoidea (1809) ハ皆此属ノ異稱ニ外ナラズ.

Haliseris undulata Holmes.

しわやはづ 岡村稱.

第 XI 圖版.

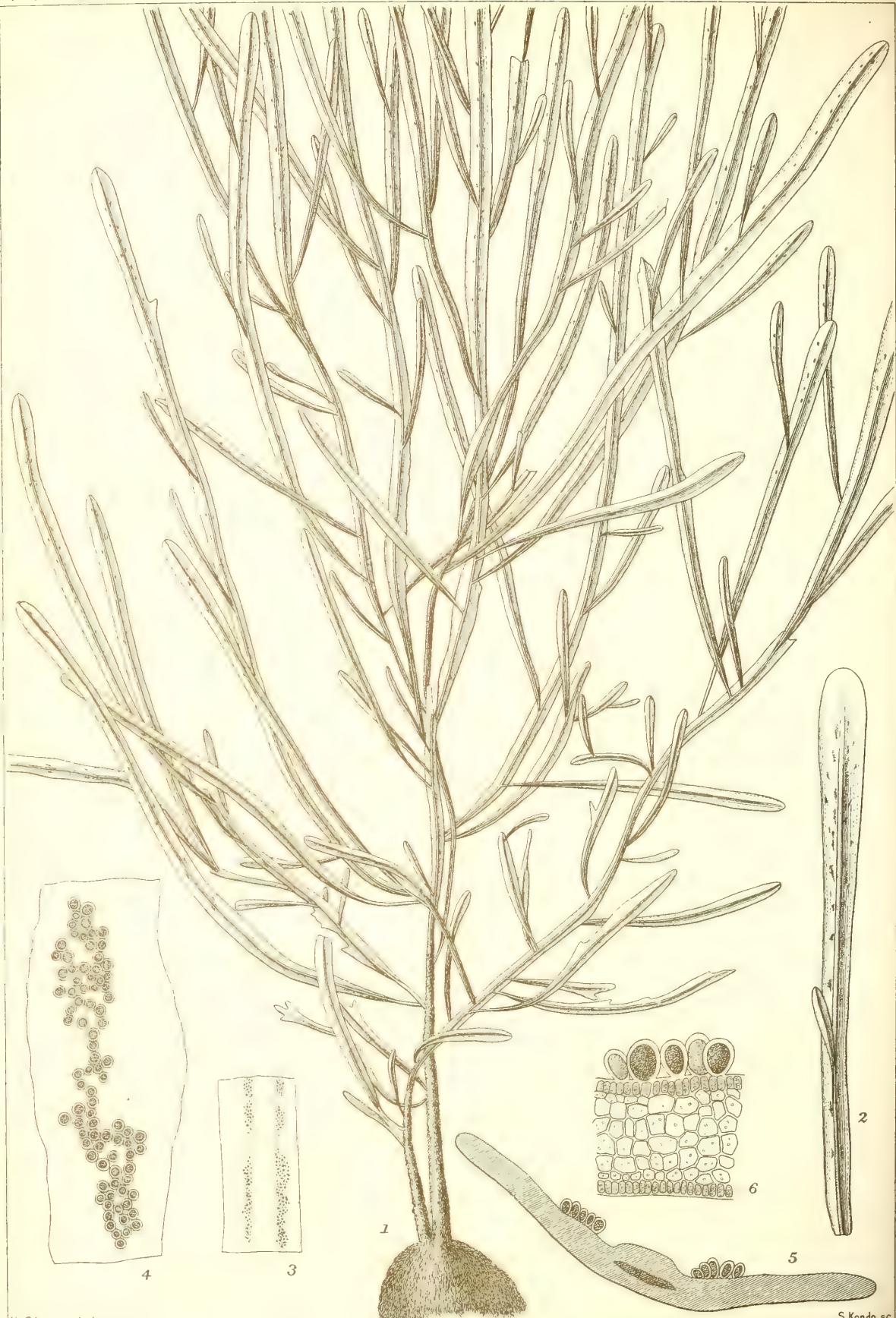
根ハ褐色ノ毛葺ヲ被ムレル圓錐狀附着器ナリ. 體ハ數條

叢生シ、數回不規則ニ叉状ヲナシ、稍羽状ノ如ク出タル枝モアリ、高サ 10-25 cm. ニ及ブ。體ノ幼キモノハ幅濶キ、稍粗硬ナル膜狀ノ翼片ヲ有シ、此モノ甚シク波縮シ、且ツ微細ナル齒ヲ有ス；其充分成長シタルモノニアリテハ翼片ハ上部ホド狹ク且ツ概子分裂ス。體ノ幅ハ其幼キモノニテハ 10-15 mm. アレドモ、老成セルモノニテハ 3-7 mm. ナリトス。枝ハ廣開シ、腋銳角ニシテ、太ク隆起セル中肋ヲ存シ、中肋ハ體ノ中央部以上マデモ毛葺ヲ存ス。老成セル枝ノ中肋ヨリ時トシテ稍小ナル副枝ヲ出スコトアリ。老成セル體ノ下部ハ略ボ圓柱狀ノ長キ莖トナレドモ、幼者ニテハ短シ。——胞子群ハ點狀又ハ橢圓形ニシテ、成熟セル體ノ上部ノ枝ノ中肋ノ兩側ニ接近シテ生ジ、後往々互ニ相癒合スルコトアリ。色ハ其新鮮ナルトキハ褐色ニシテ水中ニアリテハ淡青キ綠色ノ光澤ヲ有シ、空氣ニ觸ル、時ハ濃キ青色ニ變ジ、乾燥スルトキハ黒色トナル。質ハ粗厚ナル膜質ナリ。

產地： 潮線間ノ岩石ニ生ズ。太平洋沿岸ニ普通ニシテ臺灣ヨリ金華山ニ至ル間ニ產シ、對馬、小樽ニモアリ。

Holmes 氏ノ圖說シタルモノハ明ニ此植物ノ幼者ナリ。曩キニ神奈川縣横須賀ニテ Savatier 氏ノ採集シタル海藻ヲ P. Hariot 氏ガ *Haliseris polypodioides* (Desf.) Ag. ナリト報告シタルモノハ、予ヲ以テ見ルニ、若シ *H. latiuscula* Okam. (下ニ記ス) ナラザレバ、本種ニ外ナラズ；又 von Martens 氏ガ芝罘ヨリ獲タリトシテ *H. polypodioides* ヲ錄シタルモ亦本種ナラザルカト疑フ。蓋シ、*H. polypodioides* ハ嘗テ我邦ニ產スルコトナクシテ、本種ハ普ク隨所ニ產スレバナリ。

本種ガ *H. polypodioides* ト類縁ノ近キモノアルハ明ナレドモ、其之ト異ナル點ハ、葉ノ著シク皺ヲ有スルコトヲ別トシテ、葉ノ稍厚キト、其乾燥シタルトキ勝リテ黑色ヲナスト、及ビ中



Halyseris prolifera Okam.
へらやはづ

肋ノ著シク太キトニ存ス。之ニ反シテ、本種ハ *Dictyopteris zonarioides* Farlow ms. (Collins, Holden and Setchell's *Phycotheca Boreali-Americanana*, No. 581) ト體ノ色、分枝ノ工合及ビ中肋ノ太サ等ニ於テ酷似シ、或ハ其同一種ニアラザルカヲ疑フ如クナリ。又 Heydrich 氏モ氏ガ琉球ヨリ獲タル一種ノやはづぐさ(之ハ下ニ記ス如ク本種ノ一ノ形狀ノモノナリ) *Dictyopteris zonarioides* Farlow ニ酷似スト記セリ。分類上、本種ハ *H. polypodioides* ノ次ニ置クヲ至當トス。

本種ニ二形アリ、九洲地方ノモノト本洲以北ノモノ是ナリ。本洲及ビ其以北ノモノハ上ニ記セルモノ即チ是ナレドモ、臺灣、琉球、對馬等九洲地方ノモノハ本洲地方ノモノホド多ク葉ニ皺ヲ有セズ; 予ハ之ヲ *f. plana* ト命ゼントス。

第 XI 圖版。1: 胞子群ヲ熟セルしわやはづ, $\frac{1}{1}$ —2: 幼キ體, $\frac{1}{1}$ —3: 狹キ翼片ヲ有スル幼キ植物ノ一部, $\frac{1}{1}$ —4: 葉ノ横斷面ノ一部, $\frac{220}{1}$ —5: 枝ノ頂部ニ於ケル細胞列ヲ示セル模式圖, 郭大.—6: 枝ノ頂端ノ表面, $\frac{220}{1}$ —7: 四分胞子群ヲ有スル枝ノ一片, $\frac{5}{1}$ —8: 四分胞子群ヲ有スル枝ノ横斷面, $\frac{64}{1}$ —9: 四分胞子囊, $\frac{220}{1}$ —10: 四分胞子群ヲ表面ヨリ見タルモノ, $\frac{140}{1}$ 。

***Haliseris prolifera* Okam.**

Nom. Jap.: *Hera-Yahadzu*.

PL. XII.

Haliseris prolifera Okam. in de Toni u. Okam. Neue Meeresalgen aus Japan (Ber. d. deutsch. Bot. Gesellsch. 1894), p. 74, T. 16, fig. 1-5.—De Toni Syll. Alg., III, p. 256; Okam. Alg. Jap. Exsic. (岡村、日本海藻標品) Fasc. I, No. 40; 岡村、日本藻類名彙, p. 110.

Fronds, few arising from buffy-coloured stuppeous conical disc, thick, coriaceous, compressed, traversed by the immersed midrib, densely branched by repeated proliferations from both sides of the midrib on both surfaces, 15-30 cm. high. Lower portion of the older frond becomes stipitate by the denudation of the most part of wings. Proliferated segments elongated, 10-20 cm. long, 1-5 mm. broad, linear or linear-ob lanceolate, being attenuated at the base with rounded apices and sometimes forked. Margins usually entire, but sometimes provided with few and fine teeth.—*Oospores* densely collected in interrupted linear sori along both sides of the midrib. Colour olive brown when fresh, turning to dark bluish in exposure to the air, and becoming darker in drying. Plant does not adhere to paper in drying.

Hab. : On rocks between tide-marks. Provs. Tosa, Tōtōmi, Bōshyu, Idzumo, Uzen. Fruits :—August.

In the system the present plant stands near *H. ligulata* Suhr with which it resembles in the way of ramification, but differing in the arrangement of sori. The close affinity of the present plant with *H. latiuscula* Okam. sp. nov. will be spoken under that species.

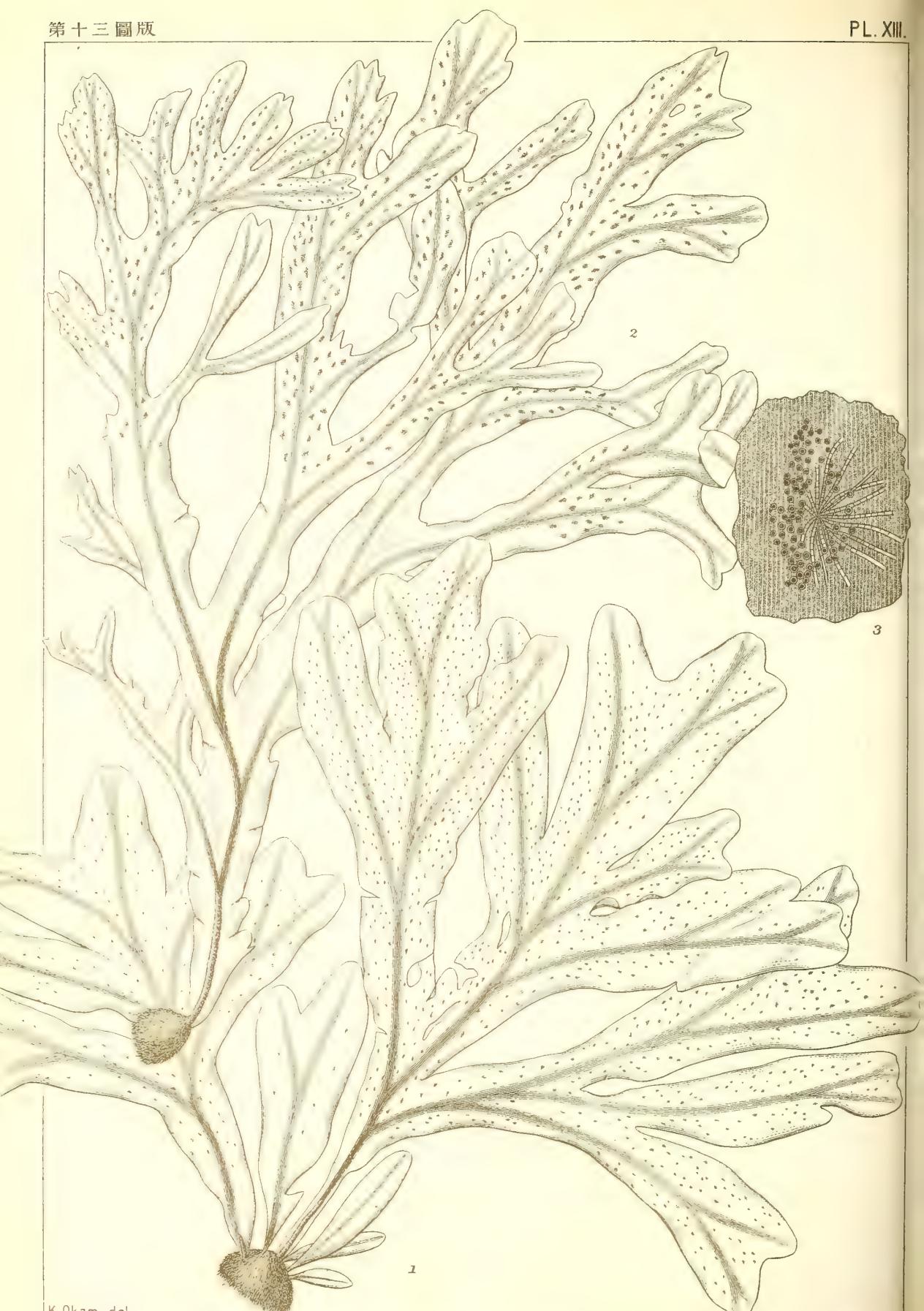
PL. XII. Fig. 1: fully grown *Haliseris prolifera* in nat. state and size.—Fig. 2: branch bearing sori, $\frac{1}{1}$.—Fig. 3: portion of branch bearing sori of oospores, slightly magd.—Fig. 4: sorus of oospores, $\frac{25}{1}$.—Fig. 5: cross-section of a segment, $\frac{50}{1}$.—Fig. 6: oospores, $\frac{90}{1}$.

Haliseris prolifera Okam.

へらやはづ 岡村稱.

第 XII 圖版.

體ハ褐色ノ毛葺ヲ以テ蔽ハレタル圓錐狀根ヨリ叢生シ.



K. Okam. del.

S. Kondo sc.

Halyseris ¹₂ divaricata Okam. n.sp.
瓦ぞやはづ 新種

クシテ扁壓, 硬ク, 中央ニ一條ノ中肋ヲ存シ, 中肋ハ内部ニ埋モレテ外面ニ隆起セズ, 體ノ兩面ヨリ中肋ノ兩側ニ於テ枝ヲ副出シ, 此枝更ニ又同様ニ次位ノ枝ヲ副出シテ密ニ枝ヲ生ズ, 高サ 15-30 cm. アリ. 老成セル體ノ下部ハ其兩側ナル翼片ノ大部脱落スルニ依テ莖ノ如キ觀ヲ呈ス. 副出セル枝ハ長クシテ, 10-20 cm. ニ達シ, 1-5 mm. ノ幅ヲ有シ, 線狀又ハ線狀一倒披針狀ナリ, 即チ下部細クシテ頂端鈍圓ナリ. 兩緣ハ通常全緣ナレドモ, 時ニハ少許ノ微カナル鋸齒ヲ有ス.—卵球ハ線狀群ヲナシテ集リ, 中肋ノ兩側ニ沿フテ斷續セル線狀ニ列ス. 色ハ新鮮ナルトキハ帶褐橄欖色ヲナシ, 後暗綠色トナリ, 乾燥スルトキハ黑色トナル. 體ハ乾燥スルトキハ臺紙ニ付着セズ.

產地: 潮線間ノ岩石ニ生ズ. 土佐, 遠江, 房洲, 出雲, 羽前. 卵球群: 一八月.

第XII圖版. 1: 充分成熟セルへらやはづ, 2: 卵球群ヲ有スル枝ノ一片, 3: 卵球群ヲ有スル枝ノ一部, 少シク廓大.—4: 卵球群ノ一部, 少シク廓大.—5: 卵球群ヲ有スル枝ノ横斷面, 6: 同上ノ一部.

Haliseris divaricata Okam. sp. nov.

Nom. Jap.: Yezo-Yahadzu.

PL. XIII, Figs. 1-3; PL. XIV, Fig. 5.

Fronds coespitose, rising from stupose conical disc, acaulescent except the basal portions of older fronds, broadly membranaceous, somewhat irregularly dichotomous with subpinnate segments, spreading in a flabellate manner with acute axils and ligulate or bifid apices,

15-20 cm high, 10-25 mm broad. Segments provided with immersed flattish midrib, lower portion of which becomes more or less prominent and stupose for a short distance. Cryptostomata densely scattered over the surface of a young frond.—Sori formed on the upper portion of an older frond in minute oval groups arranged in oblique rows from the both sides of the midrib. Colour olive-brown.

Hab.: On rocks between tide-marks. Cape Iwai in the Prov. Rikuzen, Hakodate. Sorus:—Summer.

The present plant shows an affinity on the one hand with *Haliseris polypodioides* (Desf.) Ag. and on the other, with *H. undulata* Holm., on account of its way of ramification. It, however, differs from both of them chiefly on the arrangement of sori, and in the system it will be placed next to *H. undulata* Holm.

PL. XIII, Fig. 1-3. Fig. 1: young fronds of *Haliseris divaricata* from the Cape Iwai in the Prov. Rikuzen. $\frac{1}{4}$.—Fig. 2: fully grown frond bearing sori, from Hakodate, $\frac{1}{4}$.—Fig. 3: surface-view of a sorus and a cryptostoma, ca. $\frac{15}{1}$.

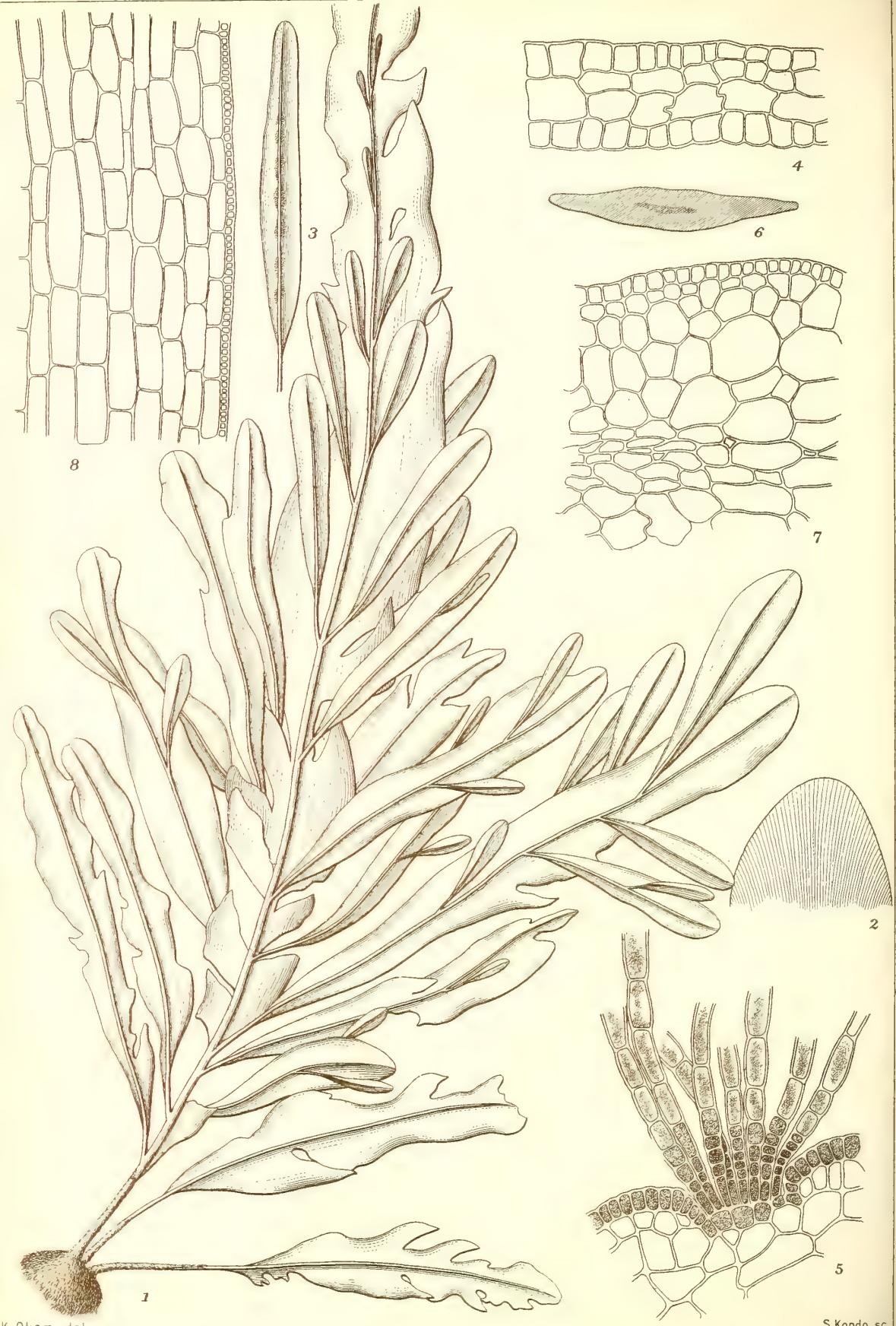
PL. XIV, Fig. 5. Fig. 5: longitudinal section cut through a cryptostoma, $\frac{220}{1}$.

Haliseris divaricata Okam. 新種.

ゑぞやはづ 岡村 稱.

第 XIII 圖版, 1-3 圖; 第 XIV 圖版, 5 圖.

體ハ褐色ノ毛葺ヲ被ムレル圓錐狀付着器ヨリ叢生シ, 老成セルモノ、基部ヲ除ク外ハ莖ヲ有スルコトナク, 潤キ膜狀ニシテ, 稍不規則ニ叉狀ニ分岐シ, 所々稍羽狀ニ出タル枝ヲ有シ, 枝



K. Okam. del.

S. Kondo. sc.

8 1 3 9 4 7 5 2

Halyseris latiuscula Okam., n.sp.; やはづじさ, 新種, Figs. 1-4.
Halyseris divaricata Okam. やはづ; Fig. 5. *Carpomitra Cabrerae* (Clem) Kuetz., いちめぢさ, Figs. 6-8.



Carpomitra Cabrerae (Clem) Kuetz.
いちめがさ

皆扇狀ニ擴ガリ、腋銳角ニシテ、枝端舌狀ヲナシ又ハ二裂ス、高サ 15-20 cm., 幅 10-25 mm. アリ。各部ニ扁キ中肋ヲ存シ、中肋ハ内部ニ埋マリテ外部ニ凸出セズト雖モ、其下部ハ多少隆起シ、根ヨリ少距離ノ間毛葺ヲ存ス。毛叢ハ幼キ體ノ兩面ニ密ニ散在ス。——胞子群ハ小サキ長卵形ノ群ヲナシテ老成セル體ノ上部ニ生ジ、中肋ノ兩側ヨリ斜ニ數列ヲナス。色ハ帶綠褐色ナリ。

產地：潮線間ノ岩石上ニ叢生ス。陸前磐井岬、函館。胞子群：一七八月。

本種ハ、枝ノ分レ方ニ依テ、一面ニハ *Haliseris polypodioides* ニ類シ、一面ニハ *H. undulata* (しわやはづ) ニ類ス；然レドモ胞子群ノ排列ノ上ヨリ此種ト異ナレリトス。分類上ノ位置ハしわやはづノ次ニ置クベキモノナリ。

第 XIII 圖版、1-3 圖。1: 無ぞやはづ(磐井崎產), 1-2: 充分成長セルモノ(函館產), 1-3: 胞子群及毛叢、約 $\frac{15}{1}$ 。

第 XIV 版、5 圖。5: 毛叢ノ縦斷面、 $\frac{220}{1}$ 。

***Haliseris latiuscula* Okam. sp. nov.**

Nom. Jap.: *Yahadzu-gusa*.

PL. XIV, Figs. 1-4.

Fronds coespitose rising from a conical disc covered with brownish hairs. Primary frond more or less broadly lanceolate or oblong-lanceolate, branching by 2-3 times proliferating from the midrib on both surfaces. As the plant grows in age the wings of the primary frond as well as those of secondary segments become for the most

part lacerated and denudated, and thus the plant becomes longly stipitate. Segments oblanceolate or ligulate tapering at the base and ending in an obtuse apex with an even and entire margin. Plant attains 25-30 cm. or more in height and 3-10 mm. in breadth even attaining 30-40 mm. in the primary frond.—*Sori* are produced in almost linear groups closely set along the midrib of ultimate proliferations. *Colour* greenish olive in fresh state.

Hab.: Probably growing between tide-marks, often cast up ashore; Provs. Isé, Sagami, and Hitachi. *Fruit:*—Spring.

The present plant has a close affinity with *Haliseris prolifera* Okam. on account of its way of ramification and arrangement of sori, only differing from it by the broaderness of the wings.

PL. XIV, Figs. 1-4. Fig. 1 : plant in nat. state, $\frac{1}{1}$.—Fig. 2 : surface-view of the apex of a branch showing the radial arrangements of rows of cells, $\frac{22}{1}$.—Fig. 3 : fertile segment, $\frac{1}{1}$.—Fig. 4 : cross-section of an older wing, $\frac{220}{1}$.

Haliseris latiuscula Okam. 新種.

やはづぐさ. 岡村 稱.

第 XIV 圖版, 1-4 圖.

體ハ褐色ノ毛葺ヲ被ムレル圓錐狀付着器ヨリ叢生ス. 體ハ初メ單條ニシテ, 多少濶キ披針狀又ハ長橢圓樣披針狀ヲナシ, 後其兩面ノ中肋ヨリニ三回副枝ヲ發出シテ以テ分枝ス. 其漸ク老成スル時ハ始メノ體ノ翼片並ニ第二ニ副出シタル枝ノ翼片ハ大部分裂ケ且ツ脱落スルヲ以テ, 之ガ爲ニ體ノ下部ハ長キ莖ヲ有スルニ至ル. 各部ノ枝ハ倒披針狀又ハ舌狀ニシテ下部細ク, 枝端鈍頭ヲナシ, 緣邊ハ平坦ニシテ且全緣ナリ.

體ノ長サ 25-30 cm. = 達シ或ハ之ヲ超ユ, 幅ハ 2-10 mm. フ常トスレドモ, 始メノ體ノモノハ 30-40 mm. = 達スルコトアリ。——胞子群ハ上部ノ最末枝ノ中肋ノ兩側ニ密接シテ殆ド線狀ノ群ヲナス。色ハ其新鮮ナルトキハ綠褐色ナリ。

產地: 恐クハ潮線間ニ生ズルナルベシ, 概子海岸ニ打揚ゲラル。伊勢, 相模, 常陸。胞子群: 春季。

本植物ハ枝ノ出方ノ點ニ於テへらやはづト極メテ近親ナル關係ヲ有スレドモ, 翼片ノ幅遙ニ廣キヲ以テ異ナリトス。

第 XIV 圖版, 1-4 圖. 1: やはつぐさノ自然ノ狀態, $\frac{1}{1}$.—2: 枝ノ頂端ノ表面ニシテ細胞列ノ放射狀ヲナセルヲ示ス, $\frac{22}{1}$.—3: 胞子群ヲ有スル枝, $\frac{1}{1}$.—4: 老成セル翼片ノ横斷面, $\frac{220}{1}$.

Carpomitra Cabrerae (Clem.) Kuetz.

Nom. Jap.: *Ichime-gasa*.

PL. XIV, Fig. 6-8; PL. XV, Fig. 1-14.

Carpomitra Cabrerae (Clem.) Kuetz. Phyc. Gener. p. 343; Id. Sp. Alg., p. 569; Id. Tab. Phyc., IX, p. 37, t. 89, f. 1; J. Ag. Sp. Alg. I, p. 177; Harv. Phyc. Brit., tab. 14; Ardis. Phyc. Medit., II, p. 130; Bern. Alg. de Schousboe, p. 234; T. Johnson Observ. on Phaeo zoosporeae (1891), p. 1, t. VIII, f. 1-4; De Toni Syll. Alg., III, p. 385; 岡村, 日本藻類名彙, p. 235.—*C. capensis* Kuetz. Tab. Phyc. IX, p. 39, t. 89, f. II.—*C. chytraphora* Kuetz. l. c. f. III.—*Fucus Cabre rae* Turn. Hist. Fuci tab. 140.

Remarks: To me *Carpomitra capensis* Kuetz. Tab. Phyc., IX, p. 39, Tab. 89, f. II (= *Chytraphora filiformis* Suhr) and *Carpomitra chytraphora* Kuetz. l. c. Tab. 89, fig. III. seem to be identical with

the present species. Our plant rather resembles *C. chytraphora* Kuetz. l. c.

Hab. : On rocks in the depth of 10 fathoms in the Prov. Hitachi ; Enoura in Prov. Suruga ; Misaki in Prov. Sagami ; Provs. Boshyu, Kadususa and Hitachi. Fruit :—July to October.

PL. XIV, Figs. 6-8. Fig. 6 : cross-section of frond of *Carpomitra Cabrerae* (Clem.) Kuetz., $\frac{22}{1}$.—Fig. 7 : portion of the cross-section of frond, $\frac{340}{1}$.—Fig. 8 : portion of the longitudinal section of frond, $\frac{220}{1}$.

PL. XV, Figs. 1-14. Fig. 1 : plant in nat. size.—Fig. 2 : young frond, $\frac{1}{1}$.—Fig. 3 : terminal hairs of growing apices of frond, $\frac{5}{1}$.—Fig. 4 : longitudinal section of the growing apex ; *m*, meristematic region of hairs, $\frac{2}{1}$.—Fig. 5 : surface view of the apical portion of an older branch after the falling of terminal hairs, $\frac{91}{1}$.—Fig. 6 : pieces of radical hairs, $\frac{140}{1}$.—Figs. 7-11 : fertile portion of branch in various states ; 7, in the state bearing a hair-tuft, $\frac{22}{1}$; 8, in dry state, $\frac{12}{1}$; 9-11, fully grown receptacles in different positions ; $\frac{22}{1}$, $\frac{12}{1}$, $\frac{12}{1}$, respectively. —Fig. 12 : longitudinal section of the receptacular portion of a branch, $\frac{22}{1}$.—Fig. 13 : portion of the surface of a receptacle ; *p*, paraphyses bearing sporangia ; *s*, sporangia ; *s'*, empty sporangia ; *a*, surface cells of the receptacle, $\frac{390}{1}$.—Fig. 14 : characters same as in Fig. 13, $\frac{390}{1}$.

Carpomitra Kuetzing 1842.

いちめがさ属.

SPOROCHNACEAE. けやり科.

體ハ扁壓乃至扁平ニシテ線狀又ハ細キ帶狀ヲナシ, 中肋ヲ存シ, 多クハ不規則ニ叉狀ニ分岐シ, 枝皆同様ニシテ, 特ニ長條ト短條トノ區別ヲ有スルモノナシ. 體ノ構造ハ柔組織ニテ成リ, 頂端ハ束狀ヲナセル毛ニ分離ス; 此毛叢ノ基部ノ細胞常ニ

分裂シテ形成層ヲナシ、其分裂ニ依テ生ジタル細胞相結合シテ柔組織ヲナス；故ニ其形成層ノ如キ部分ヲ以テ成長點トナス、即チ所謂頂毛成長ナリ。單子囊ハ之ヲ生ズル小枝ノ一部ニ相集リテ群生シ、其部ハ概乎短キ帽狀ヲナシ、時ニ鐘狀又ハ笠狀ヲナシ他ノ部ト明ニ區別セラル；而シテ單子囊ハ關節セル棍棒狀ノ絲ノ基部又ハ側面ニ平等ニ付着シ棍棒狀ヲナス。複子囊ハ之ヲ欠ク。

約五種アリテ、歐洲ノ太西洋沿岸、北米ノ太平洋沿岸、亞弗利加ノ南海岸及多數ハ濠洲ノ沿岸及ビ附近ノ諸島ニ產ス。Carpomittra ハ Carpos (實) ト mitra (法皇ノ冠) ニテ胞子群メ形ニ取レリ。我邦古代ノ市女笠ニ似タルヲ以テ屬ノ名トセリ。

Carpomittra Cabreræ (Clem.) Kuetz.

いちめがさ 岡村稱。

第 XIV 圖版, 6-8 圖; 第 XV 圖版, 1-14 圖。

體ハ細キ帶狀ニシテ叉狀ニ分岐シ、所々三叉狀ヲナス；下部ハ褐色ノ毛葺相集リテ莖狀ヲナシ、體ノ下半部ノ所々ニモ亦毛葺ヲ存ス；體ノ高サ 10-20 cm. ニシテ幅 2-3 mm. アリ。各部ハ基部細クシテ上部ニ再び細ク、枝端ハ二裂シ尖銳ナリ。中肋ハ體ノ下部ニ太クシテ上部ニ漸ク不明ナリ。幼キ枝ハ其頂端ニ綠色ヲ帶ビタル毛葺ヲ戴キ、後漸ク老成スル時ハ毛葺ハ脱落ス。——胞子群ハ小枝ノ頂端ニ生ジ、之ヲ生ズル小枝ハ或ハ枝ト枝トノ腋ニ在リ、或ハ一枝ノ基部ヨリス；而シテ胞子托即チ胞子群ヲ有スル小枝ハ恰モ帽狀ヲナシ、其表面ニ子囊群ヲ有ス。子囊ハ棍棒狀ニシテ、關節セル棍棒狀ノ絲ノ側面ニ生ズ；此絲ハ胞子托ノ表面ノ細胞ヨリ生ジ、單條ナリ（又ハ分岐ス？）。色ハ綠褐色ナリ。質ハ始メ薄キ膜質ニシテ老成スル時ハ稍硬ク、紙ニ附着セズ。

予思フニ *Carpomitria capensis* Kuetz. (= *Chytraphora filiformis* Suhr) 及 *Carpomitria chytraphora* Kuetz. ハ蓋シ本種ト同一ナルベシ。本邦所產ノモノハ寧ロ *chytraphora* = 近シ。

產地：十尋ノ深所ニ生ズ(茨城縣)。駿州江ノ浦、相州三崎、房州、上總及常陸。胞子群：一七月—十月。

第 XIV 圖版, 6-8 圖。6: いちめがさノ體ノ横斷, $\frac{22}{1}$ 。—7: 同上ノ一部, $\frac{340}{1}$ 。—8: 體ノ縱斷面ノ一部, $\frac{220}{1}$ 。

第 XV 圖版, 1-14 圖。1: いちめがさ, $\frac{1}{1}$ 。—2: 幼キ體, $\frac{1}{1}$ 。—3: 體ノ成長點ノ頂毛叢, $\frac{5}{1}$ 。—4: 成長點ノ縱斷; m, 頂毛成長ヲナスベキ毛葺ノ形成部; $\frac{220}{1}$ 。—5: 頂毛ノ墜落シタル後ナル老成セル枝ノ頂端部ノ表面, $\frac{91}{1}$ 。—6: 根部ノ毛, $\frac{140}{1}$ 。—7-11: 胞子群ヲ有スル枝ノ種々ノ狀態; 7, 頂毛ヲ有スルモノ, $\frac{22}{1}$; 8, 乾燥セル狀態, $\frac{12}{1}$; 9-11, 充分成熟セル胞子托ノ種々ナル位置ニアルヲ示ス; 9: $\frac{22}{1}$; 10: $\frac{12}{1}$; 11: $\frac{12}{1}$ 。—12: 胞子托ノ繼斷, $\frac{22}{1}$ 。—13: 胞子托ノ表面ノ一部; p, 單子囊ヲ有スル根棒狀ノ絲即チ「バラフヒシス」; s, 單子囊; s', 單子囊ノ空虛ナルモノ; a, 胞子托ノ表面ノ細胞; $\frac{390}{1}$ 。—14: 指字ハ 13 圖ト同ジ, $\frac{390}{1}$ 。

追 加

屬名ハ概チ希臘又ハ羅典語ヨリ成レルヲ以テ,其語源ヲ知ルコト容易ナラザレドモ,予ノ知リ得ルモノニ就テ各屬ノ下ニ之ヲ記サントス,今此處ニハ第一集及第二集分ノ語源ヲ列記ス.

第一集 分

Microcladia : Micros (小), clados (枝) ナルヲ以テ, 小ハさニ通ズル故されだト命ジタリ.

Carpoblepharis : Carpos (實), blepharis (睫毛)ニシテ, 小枝ニ囊果ヲ有スル狀ニ取レリ.

Scinaia : Palermo ノ學者 Domenico Scina 氏ノ名ニ取レリ.

Chondria : Chondros (軟骨)ニテ, 體質ニ因ミタルナリ.

Zonaria : Zone (帶)ニテ横ニ縞ノ如クナレルヲ云フ.

Hydroclathrus : Hydor (水), cleithron (格子窓)ニテ體ノ表面ニ孔多キニヨレリ.

Cylindrocarpus : Cylindros (圓柱), carpos (實)ニテ, 單子囊ノ形ニヨレリ.

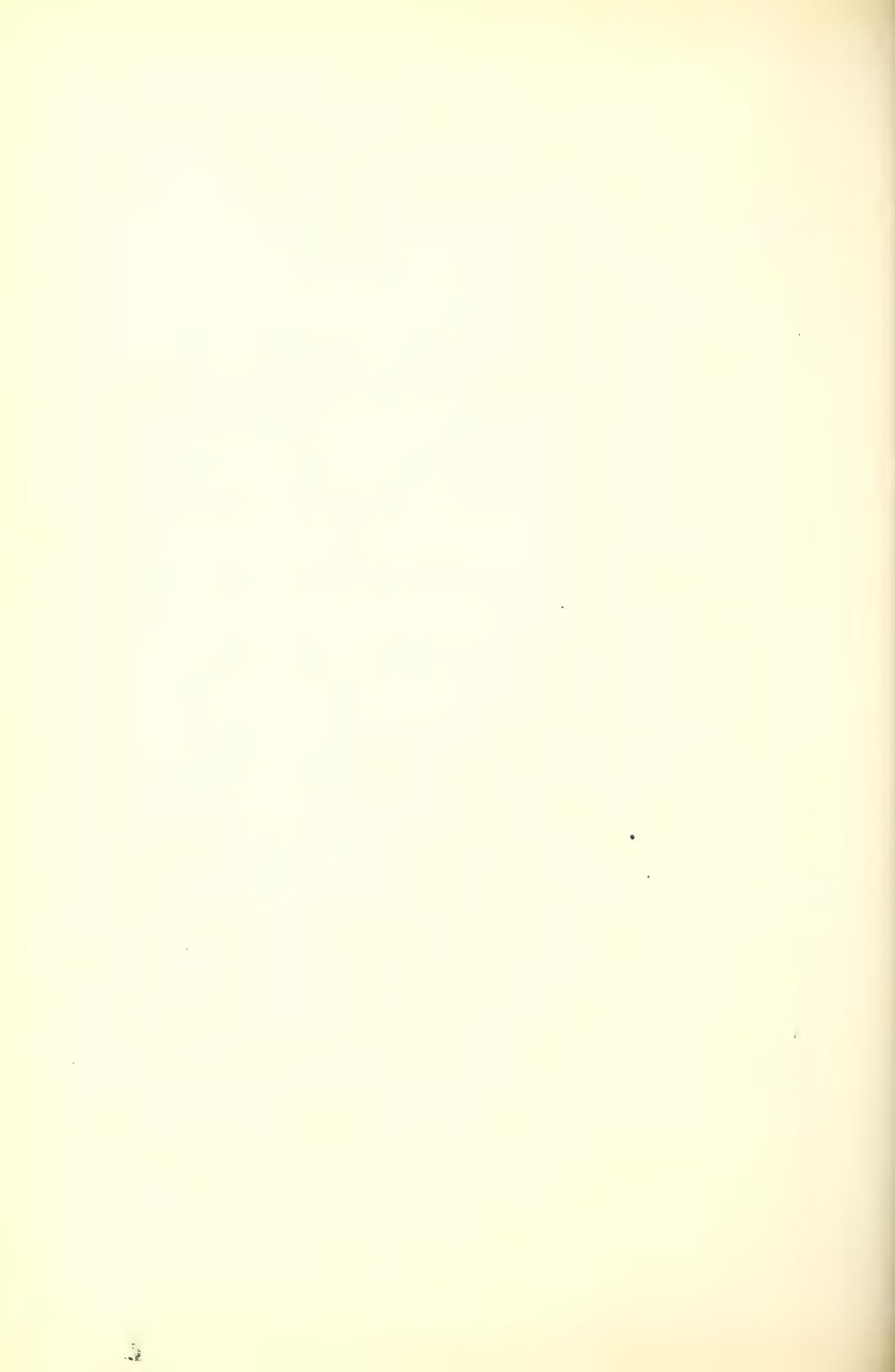
第二集 分

Acrocystis : Acros (頂上), cystis (囊)ニテ, 體形ニヨレリ.

Enantiocladia : Enantios (對生), clados (枝)ニテ, 枝ノ對生ヨリ命ジタルリナ.

Nemalion : Nema (絲), leion (收穫)ト云フ説明アレドモ, 意明ナラズ, 或ハ全體絲ヨリ成リ所々ニ囊果ノ存スルニ取レルカ.

Hypnea : 蘚ノ Hypnum 屬ニ取レリ, 其細カキ枝ヲ生ズルコト恰モ蘚ノ如クナレバナリ.



Dumontia filiformis (Fl. Dan.) Grev.

Nom. Jap.: *Riumon-sō*.

PL. XVI, Figs. 1-8.

Dumontia filiformis (Fl. Dan.) Grev. *Alg. Brit.* p. 165, tab. XVII; Harv. *Phyc. Brit.* tab. LIX; Kuetz. *Sp. Alg.* p. 718; Id. *Phyc. Gen.* p. 394, t. 74, f. 2; Id. *Tab. Phyc.* XVI, t. 81; *J. Ag. Sp. Alg.* II, p. 349; Id. *Epicr.* p. 275; Id. *Florid. Morphol.* t. 17, f. 15; Hauck *Meeresalg.* p. 129, f. 50; De Toni *Syll. Alg.* IV, p. 1621; 岡村, 日本藻類名彙 p. 92.—*Confervia filiformis* Fl. Dan. t. 1480, fig. 2.—*Dumontia contorta* Rupr. *Tange des Ochot. Meer.*, p. 295.—*Gastri-dium filiforme* Lyngb. *Hydr. Dan.* p. 68, tab. 17.

Hab.: Urupp Island. Cystocarps and tetraspores: July-Aug.

Formation of the cystocarp. Among the materials collected at Urupp Island by several persons I found a few dried specimens of the plant, and fortunately enough I was able to study the formation of the cystocarp in them.

The carpogonial branch, mostly consisting of 5 cells, arises as a short lateral branch of a longitudinal filament which forms the inner layer of cortical stratum and gives rise to forked moniliform filaments. It is strongly curved toward its free extremity as it is represented in Schmitz's *Befruchtung der Florideen* Taf. V, fig. 22, and the terminating cell, the carpogonium, carries a long twisted trichogyne. Auxiliary cell-branches consist of more or less curved rows of mostly four sometimes five disk-shaped cells which are easily distinguished from the remaining ones by their enriched contents. They are pretty abundantly prepared in the vicinity of the procarp as short branches in a position similar to that where it takes its origin, and also are often

found in the cortical layer, each arising as a branch from one of the lower cells of a cortical filament. The cell standing next to the proximal one of an auxiliary cell-branch acts as an auxiliary cell, while the remaining ones in the same row serve as nourishing cells. After fertilization has taken place trichogyne is cut off from the carpogonium by the formation of a septum, and cells of the carpogonial branch more or less fuse together into one mass. From the carpogonium thus fused, 4 or 5 or perhaps more ooblastema-filaments arise in every direction. They are pretty long and slender and are neither branched nor septate, as far as I have observed. The auxiliary cell acted upon by an ooblastema-filament becomes a placental cell which soon gives rise to a globular mass of carpospores.

PL. XVI, Figs. 1-8. Fig. 1: plant in dry state, $\frac{1}{1}$.—Fig. 2: portion of the cross-section of frond bearing tetrasporangia, $\frac{140}{1}$.—Fig. 3: portion of the longitudinal section of frond showing the formation of cystocarps; α , α , auxiliary cell-branches; b , fused mass of carpogonial cells; c , cystocarp; f , longitudinal filament forming the inner layer of cortical filaments; o , o , ooblastema-filaments; t , trichogyne; $\frac{350}{1}$.—Fig. 4: carpogonial branch; f , longitudinal filament; $\frac{350}{1}$.—Fig. 5: fusion of carpogonial cells; f , filament; t , trichogyne; $\frac{350}{1}$.—Fig. 6: fused carpogonial cells and ooblastema filaments; f , filament; g , carpogonium; $\frac{940}{1}$.—Fig. 7: formation of a cystocarp, c ; α , auxiliary cell-branch; f , filament; $\frac{350}{1}$.—Fig. 8: cystocarp, c , $\frac{220}{1}$.

Dumontia Lamouroux 1813.

りうもんさう属.

DUMONTIACEAE りうもんさう科.

體ハ圓柱狀扁圓若クハ扁壓, 中空ニシテ側面ヨリ不規則ニ分枝ス. 枝ノ最頂端ナル成長部ニノミ中央ニ一細胞列ヲ存



K.Okam. del

¹⁰ ¹² ¹⁴ ¹ ¹³ ⁹ ⁶ ¹⁹ ⁵ ² ¹⁸ ⁷ ³ ¹⁷
Dumontia filiformis (Fl.Dan) Grev. りうもんさう Figs. 1-8.
Chondria armata (Kg.) Okam. はあやなぎ Figs. 9-19.

シ、此列ノ細胞ヨリ各方面ニ枝ヲ互生シ、此枝外部ニ分枝シテ以テ其部ノ皮部ヲ形成ス；然レドモ、内部ノ組織ハ極メテ早ク且ツ速ニ弛緩スルヲ以テ體ノ内部ハ空虚トナル。體壁ハ、其充分形成セラレタルモノニ於テハ、外方ニ密ニシテ小ナル細胞ヨリ成リ、内方ニハ稍緩クシテ大ナル細胞ヨリ成ル；此等細胞ハ體ノ内部ヲ縱走スル髓絲ノ分枝スルモノヨリ成ル處ニシテ、又別ニ多少數多キ根様絲アリテ髓絲ト共ニ存ス。頂細胞ハ各方面ニ互ニ斜面ヲ以テ關節ス。——四分胞子囊ハ髓ノ表皮層中ニ散在シ、十字様ニ分裂ス。胎原列及助細胞列ハ多數ニ體壁ノ最内部ニ生ズ。囊果ハ多數ニ體壁ノ内側ニ散在シ甚ダ小ナリ；仁ハ可ナリ大ナル果胞子ノ小サキ團塊ヨリ成ル。

本屬ニ屬スル種類ハ僅ニ一、二種ニシテ太平洋及太西洋ノ北部ニ產ス。此處ニ記載スル種類ハ其模範タルベキモノニシテ、太西洋ノ北部ナル歐洲ノ沿岸ニ產シ、太平洋ニテハ「オコーック」海ニ產ス。

Dumontia ノ名ハ佛國ノ博物學者 M. Dumont 氏ノ名譽ノ爲ニ付シタルニテ、りうもんさうト云ヘル和名ハ Dumontia ノ音便ニ依テ予ノ命ジタル處ナリ。

Dumontia filiformis (Fl. Dan.) Grev.

りうもんさう。

第 XVI 圖版, 1-8 圖。

體ハ概子叢生シ、1-6 dm. ノ長キ枝ヲ以テ搖ラギ、小サキ盤狀根ヲ以テ直立ス；圓柱狀ニシテ、各部皆基部細ク、上部ニ漸次太ク、頂端ノ方ニ復タ尖ル、太サ 1-6 mm. 乃至 10 mm. ニ達シ、多クハ單條ナレドモ枝ノ下部ヨリハ往々同様ナル小枝ヲ發ス。其太キモノニアリテハ、内部ノ中空ナル爲メ、處々膨レタル所ト縊レタル所トヲ生ジ、20-26 mm. ニ達スル太サヲ有スルモノアレド

モ,斯ノ如キモノハ概予扁平トナリ, 緣邊波狀ヲナシ, 少少螺旋狀ニヨル、コトアリ。枝ノ再三分枝スルコトハ極メテ稀ナリ。色ハ赭紅色乃至紫紅色ナリ。質柔滑ニシテ紙ニ膠着ス。

產地: 得撫島。四分胞子及囊果: 一七八月頃。

分布: 太平洋及太西洋ノ北部。

予ノ許ニ達セル標本ハ甚ダ僅ニシテ完全ナルモノハ唯此處ニ圖シタル一ノミ他ハ皆破片ナリ, 故ヲ以テ此處ニ掲タル種ノ記載ハ書籍ノ記ス所ニ籍リタリ。產地ノ狀況モ, 書ニ依テ見ルニ, 概予波浪ノ靜ナル所ヲ好ミテ生ズルモノ、如ク, 通常潮線間ノ潮溜リ等ニアリ, 枝ノ甚シク長キモ亦此ガ爲メナリト思ハル。又 Reinke 氏ノ云フ所ニ依レバ, 「バルチツク」海ニテハ, 五六月ノ頃實ヲ熟シタル後直立セル部分ハ死スルモ, 盤狀根ハ殘留シ, 後之ヨリ新條ヲ生ズト云フ; 其盤狀根ニハ貯藏物質ヲ貯ヘ以テ越年スルモノニシテ, 此ノ如キハ我邦ニテモ其例少ナカラズ。

囊果ノ形成: 予ノ許ニ送ラレタル乾燥標品中囊果成形ノ順序ヲ知ルニ足ルモノアリタリ, 依テ之ヲ研究スルコト下ノ如シ。

胎原列ハ多クハ五個ノ細胞ヨリ成リ, 體ノ内部ヲ縱走スル絲ノ側枝トシテ生ズ, 此絲ハ皮部ノ内層ヲ形成スルモノニシテ, 屢々分岐シテ念球牀ノ皮層絲ヲナス。胎原列ノ頂端ノ著シク屈曲スルコトハ, Schmitz 氏ガ其 Befruchtung der Florideen 第 V 圖版第 22 圖ニ示シタルガ如シ; 此列ノ頂端ナル細胞即チ胎心ハ長クシテ捩レタル受精毛ヲ生ズ。助細胞列ハ概予四個, 時ニ五個ノ盤狀細胞ヨリ成リ多少屈曲ス; 此細胞ハ內容物ニ富メルヲ以テ周圍ノ細胞ト明ニ區別スルヲ得。助細胞ハ胎原列ノ生ズルト同様ノ所ヨリ短キ枝トナリテ出デ, 其附近ニ可ナリ多數ニ存在ス; 又皮層絲ノ下部ノ細胞ノ一ヨリ各一條ノ枝トシテ生ジ, 以テ皮層中ニ在ルコトアリ。助細胞列ノ基部ヨリ二番目ノ細胞即チ助細胞ニシテ他ノ細胞ハ之ニ營養分ヲ與フルモノナリ。受胎シタル時

ハ受精毛ハ隔膜ヲ生ジテ胎心細胞ヨリ分離シ胎原列中ノ細胞ハ多少癒合シテ一塊ヲナス。斯ク癒着シタル胎心細胞ヨリ、4-5條乃至尙ホ數條ノ「オーブラステマ」絲ヲ各方面ニ發出ス。此絲ハ可ナリ長クシテ纖ク、予ノ見タルダケニテハ枝ヲ出スコトナク又關節スルコトモナシ。「オーブラステマ」絲ノ作用ヲ受ケタル助細胞ハ胎坐トナリ、此細胞ヨリ仁ヲ造成スペキ短キ成胞絲ヲ生ズ;此成胞絲ノ各細胞ハ皆果胞子ト成リ、以テ囊果ヲナス。囊果ハ斯クテ數個ノ果胞子ヨリ成レル一小團塊ニシテ薄キ粘膜ヲ以テ蔽ハレ、皮層中ニ散在スルニ至ル。

第XVI圖版、I-8. 圖 1: りうもんさうノ乾燥シタルモノ, $\frac{1}{1}$.—
2: 四分胞子囊ヲ有スル體ノ横斷面ノ一部, $\frac{140}{1}$.—3: 囊果ノ形成ヲ示スペキ縦断面ノ一部; a, a, 助細胞列; b, 胎原列ノ細胞ノ癒合シタル塊; c, 囊果; f, 皮層絲ノ内層ヲ形成スル絲; o, o, 「オーブラステマ」絲; t, 受精毛; $\frac{350}{1}$.—4: 胎原列; f, 級狀細胞, $\frac{350}{1}$.—5: 胎原列ノ細胞ノ癒合セルモノ; f, 級; t, 受精毛; $\frac{350}{1}$.—6: 胎原列ノ細胞ノ癒合シタルモノ; f, 級; g, 胎心細胞; $\frac{940}{1}$.—7: 囊果, cノ形成; a, 助細胞列; f, 級; $\frac{350}{1}$.—8: 囊果, c, $\frac{220}{1}$.

Chondria armata (Kuetz.) Okam.

Nom. Jap.: *Hana-yinagi*.

PL. XVI, Figs. 9-19.

Lophura armata Kuetz. Tab. Phyc. XVI (1866) p. 2, t. 3, f. a-b;
De Toni Syll. Alg. IV, p. 1133.—*Rhodomela crassicaulis* Harv. in
Alg. Ceyl. sub n. 8.—Chondriopsis crassicaulis (Harv.) J. Ag. Anal.
Alg. (1892), p. 161, (non *Chondria crassicaulis* Harv. Alg. Wright.
1859).

Frond dendritic, standing with a short, thick, firm and subcylindrical stem, which firmly adheres to substratum by thick, stunted, root-like branches, attaining the height of 5-6 cm. Stem which attains for the most part a thickness of 2-3 mm. soon dissolves above into many slender branches. Branches, which are naked below, are densely loaded above with short ramuli on all sides. Ramuli are somewhat fusiform in shape, rising from slightly narrowed bases and tapering into sharp points. Cystocarps unknown. Tetrasporangia formed in upper portions of ordinary ramuli. Colour when fresh pinkish-red with whitish lustre, changing into dark brown on drying.

Structure of frond.: Frond internally consists of five pericentral cells, which are more or less densely surrounded by roundish angular, subcortical cells, and externally by an epidermal layer. The structure of stem is more dense than that of ramuli which are more or less loosely constructed, leaving larger lacunar spaces, in which filamentous cells are often observed. Around the growing apices of branches of every order, there arise on all sides deciduous hair-leaves, which have their origin on basal cells derived from axial cells. The position of a hair-leaf, after it has fallen off, is easily to be seen in surface-view of branches as it presents a roundish cell as its scar, while the remaining cells neighboring it are elongated and somewhat reticulated. As that portion becomes thicker, the scar-like cell will be accompanied by two or more similar, roundish cells which are arranged in a linear longitudinal row.

Hab.: On rocks between tide-marks; Cape Bō (Prov. Satsuma), Isl. Tanegashima (Prov. Ōsumi).

Kuetzing in 1866 described the plant in question collected at Wagap in New Caledonia under the name of *Lophura armata*. On studying the plant which was collected by me at the Cape Bō, I found

that our plant is identical with Kuetzing's from his illustrations (Tab. Phyc. XVI, t. 3), which seems to me to be nothing but *Chondria* as it will be seen from the description above. Afterward I came to notice that Harvey's *Rhodomela crassicaulis* is also identical with Kuetzing's plant from the illustrations given by Svedelius in his "Algenvegetation eines ceylonischen Korallenriffes" (Botoniska Stud., 1906) Figs. 3 and 9. J. Agardh many years ago excluded *Rhodomela crassicaulis* Harv. in his Sp. Alg. Vol. II, pars III (1863), p. 890, doubting Harvey's identification, but in Anal. Alg. (1892) p. 161 he put it under *Chondria*.

As far as my knowledge goes, no one has yet shown that *Lophura armata* Kuetz. is same as *Rhodomela crassicaulis* Harv. And if my identification proves to be correct the latter plant must be called *Chondria (Chondriopsis) crassicaulis* (Harv.) J. Ag. according to J. Agardh's opinion. But this species-name may cause confusion with *Chondria crassicaulis* Harv., an indigenous plant, and so here I think the name of *Chondria armata* (Kuetz.) Okam. may be preferable to *Chondria crassicaulis* (Harv.) J. Ag.

PL. XVI, Figs. 9-19. Fig. 9: *Chondria armata* (Kuetz.) Okam. in nat. state and size.—Fig. 10: one of fronds, very slightly magd., ca. $1\frac{1}{2}$.—Fig. 11: terminal portion of a branch, $\frac{42}{1}$.—Fig. 12: cross-section of a ramulus, $\frac{220}{1}$.—Fig. 13: growing apex of a branch, $\frac{390}{1}$.—Fig. 14: portion of the longitudinal section of a branch; *a*, axis; *b*, basal cell of a hair-leaf, $\frac{220}{1}$.—Fig. 15: surface-view of the apical portion of a very young ramulus, showing the scar of a hair-leaf, $\frac{390}{1}$.—Fig. 16: same as Fig. 15, a little lower, $\frac{220}{1}$.—Fig. 17: same as Fig. 15 far lower, $\frac{220}{1}$.

Chondria armata (Kuetz.) Okam.

はなやなぎ 岡村 稔.

第 XVI 圖版, 9-19 圖.

Chondria (Agardh 1818, やなぎのり属; Rhodomelaceae) の性質ハ
第 14 頁ニアリ。

體ハ樹狀ニシテ低ク, 太キ堅牢ナル略ボ圓柱狀ノ莖ヲ以テ直立シ, 太クシテ短キ根ノ如キ枝ヲ以テ固ク他物ニ固着ス, 高サ 5-6 cm. アリ。莖ノ大部分ハ 2-3 mm. の太さヲ有シ, 上部ニ至テ數條ノ稍細キ枝ニ分ル。枝ハ其下部ニハ小枝ナケレドモ上部ニハ短キ小枝ヲ密ニ各側面ニ着ク。小枝ハ稍紡錘狀ヲナシ, 少シク細リタル基部ヲ以テ立チ, 頂端尖銳ナリ。囊果ハ詳ナラズ。四分胞子囊ハ常態ノ小枝ノ上部ニ形成セラル。色ハ新鮮ナル時ハ淡キ石竹色ニシテ白色ノ光澤ヲ存スレドモ, 乾燥スルトキハ暗褐色トナル。質ハ軟骨様ナレドモ, 小枝ハ柔軟ナリ。

構造: 體ハ中心ニ一條ノ中軸ヲ存シ, 其周圍ニ五條ノ周心細胞アリ; 周心細胞ハ圓形一多角形ノ皮部細胞ヲ以テ多少密ニ圍繞セラル; 其外部ハ一層ノ表皮ヲ有ス。莖ノ構造ハ小枝ヨリモ遙ニ密ニシテ, 小枝ハ多少緩ク組織セラレ所々ニ稍大ナル空隙ヲ存シ, 此空隙中ニ往々絲狀ノ細胞ヲ見ル。枝ノ頂端ノ周圍ニハ早落性ノ毛狀枝アリテ各方面ニ出デ, 毛狀枝ハ中軸細胞ヨリ起レル毛基細胞ヨリ生ズ。此毛狀枝ノ生ジ居タル位置ハ其脱落シタル後ニテモ, 之ヲ枝ノ表面ヨリ見レバ, 明ニ認ルヲ得ベシ; 蓋シ, 其部ノ細胞ハ圓形ニシテ其落チタル痕跡ヲ示シ, 其周圍ノ細胞ハ多少長クシテ且ツ網狀ヲナセバナリ。此部ノ太クナルニ隨ヒ, 其痕跡ノ如キ細胞ハ他ノ之ト同様ナル二三ノ圓形細胞ト共ニ一直線ニ縦ニ列スルニ至ル。

產地：潮線間ノ岩石ニ生ズ。坊岬(薩摩),種子ヶ島(大隅),

分布：ニウカレドニア,印度錫蘭。

Kuetzing 氏ハ 1866 年ニ New Caledonia ナル Wagap ニテ採集セラレタル本種ノ植物ヲ *Lophura armata* ト命ゼリ。予ハ坊岬ニテ自身ニ採集シタル本植物ヲ研究シテ其 Kuetzing 氏ノ新種ト認メタルモノト同一ナルヲ知レリ; 氏ノ圖說シタルモノハ Tab. Phyc. XVI, t. 3 ニアルヲ以テ, 之ト比スルニ全ク予ノモノト同一ニシテ, 其 Chondria 屬ノ植物ナルコトハ上記ノ性質ニ依テ知ルコトヲ得。其後, 予ハ又, Svedelius 氏ノ Algenvegetation eines ceylonischen Korallenriffes ニ掲ゲタル圖ニ依テ, Harvey 氏ガ *Rhodomela crassicaulis* ト命ジタル印度錫蘭ノ植物モ Kuetzing 氏ノ *Lophura armata* ト命ジタルモノト等シキコトヲ知ルヲ得タリ。數年前, 既ニ J. Agardh 氏ハ Harvey 氏ノ *Rhodomela crassicaulis* トシタルモノヲ疑ヒ, 之ヲ氏ノ Sp. Alg. Vol. II, pars III (1863), p. 890 ニ於テ *Rhodomela* 屬ヨリ除キ, 後 Anal. Alg. (1892) p. 161 ニ於テ之ヲ *Chondria* 屬ニ移セリ。

予ノ知ル處ニ依ルニ, 今日マデ未ダ嘗テ *Lophura armata* Kuetz. ノ *Rhodomela crassicaulis* Harv. ト同一種ナルコトヲ論ジタルモノアラズ。依テ, 若シ予ノ見ル所ニシテ誤ナラザリセバ, *Rhodomela crassicaulis* Harv. ハ J. Agardh 氏ノ説ニ隨ヒ *Chondria* (J. Agardh 氏ハ之ヲ *Chondriopsis* トセリ) *crassicaulis* (Harv.) J. Ag. トセザルベカラザルナリ。然レドモ, 此種名ハ本邦特產ノ一海藻タル *Chondria crassicaulis* Harv. (和名ゆな, 第一集 12-16 頁) ト混雜ヲ生ズルノ嫌アリ; 故ニ以テ予ハ此植物ノ種名ヲ *Chondria armata* (Kuetz.) Okam. トスル方 *Chondria crassicaulis* (Harv.) J. Ag. トスルニ優レリト思惟ス。

第 XVI 圖版, 9-19 圖。9: はなやなぎノ自然狀態, 10: 體ノ一ヲ約一倍半廓大シタルモノ。—11: 枝ノ上部, 12: 小枝ノ横斷面, 13: 枝ノ成長點, 14: 枝ノ縱斷面ノ一部; a, 中軸; b, 毛基細胞; 15: 極メテ若キ小枝ノ頂端ニ近キ部分ノ

表面ニシテ毛狀枝ノ落チタル痕ヲ示ス。 $\frac{390}{1}$ —16: 同上ノ枝ノ稍下部ナル毛狀枝ノ痕跡。 $\frac{220}{1}$ —17: 同上ノ枝ノ更ニ下部ナル毛狀枝ノ痕跡。 $\frac{220}{1}$ —18: 四分胞子ヲ有スル小枝。 $\frac{42}{1}$ —19: 同上ノ一部。 $\frac{91}{1}$

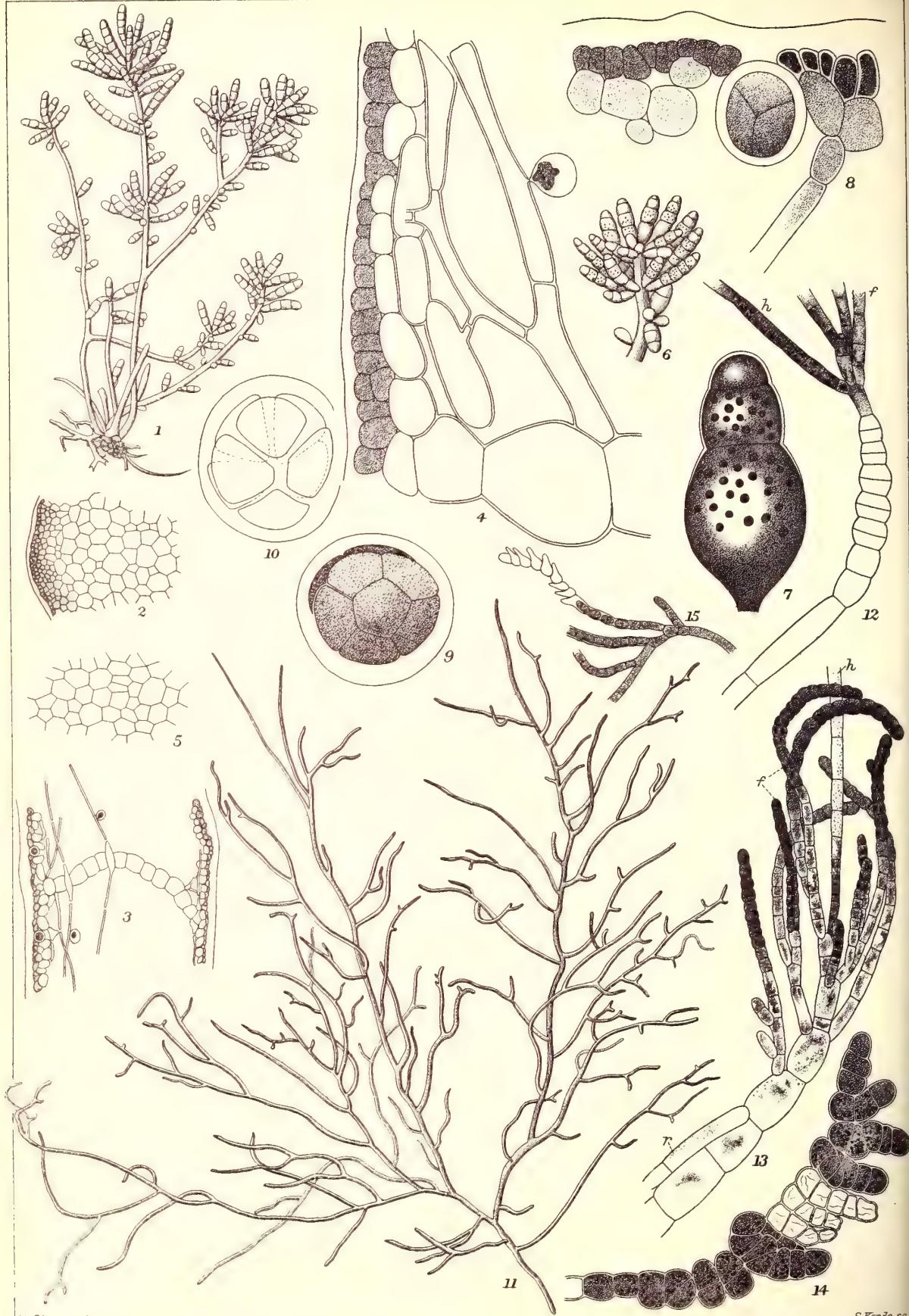
Gastroclonium ovale (Huds.) Kuetz.

Nom. Jap.: *Iso-matsu*.

PL. XVII, Figs. 1-10.

Gastroclonium ovale (Huds.) Kuetz. Phyc. gen. (1843) p. 441; Id. Sp. Alg. p. 865; Id. Tab. Phyc. XV, t. 98, f. a-c; De Toni Syll. Alg. IV, p. 570; Okam. Alg. Jap. Exsic. (日本海藻標品) No. 64; 岡村日本藻類名彙 p. 44.—*Lomentaria ovalis* (Huds.) J. Ag. Sp. II, p. 736; Id. Epicr. p. 634; Hauck Meeresalg. p. 202.—*Fucus ovalis* Huds. Fl. Angl. p. 573; Turn. Hist. Fuci t. 81 (excl. var. β).—*Chylocladia ovalis* Harv. Phyc. Brit. t. 118.—*Fucus polypodioides* Gmel. Hist. p. 186.—*Fucus vermicularis* Gmel. Hist. p. 162, t. 18, f. 4.—*Gastroclonium subarticulatum* Kuetz. Phyc. gen. p. 441; Id. Sp. Alg. p. 866; Id. Tab. Phyc. XV, t. 98, f. d-f.—*Gastroclonium umbellatum* Kuetz. Sp. Alg. p. 866; Id. Tab. Phyc. XV, t. 97, f. d-f.

Remarks: In our specimens I do not find very remarkable differences from the European species, only the articulations of ramuli being somewhat different from the typical plants. Among the European forms one named *Gastroclonium subarticulatum* Kuetz. (Tab. Phyc. Vol. XV, t. 98) has many septate ramuli like ours, but according to his illustrations every basal joint of ramuli is much elongated after the manner of non-articulated ramuli of the typical plant. The basal articulation of ramuli are in ours somewhat longer



K. Okam. del.

S. Kondo sc.

3 2 1 5 10 9 4 11 6 15 13 7 14 8 12

Gastroclonium ovale (Huds.) Kg. いそまつ Figs. 1-10.
Eudesme virescens (Carm.) J. Ag. おきあはもづく Figs. 11-15.

than the remaining ones, though they are not so long as in the Atlantic plant. But considering that even among the Atlantic forms there are various deviations from the typical plant in the length of ramuli (3-20 mm.) and number of articulations, yet they are put in the same species (e.g. *Gastr. subarticulatum* Kuetz., *Gastr. umbellatum* Kuetz.) we may take our plant as one and the same species as the European. If it should prove in other days to be not the same species, it would be a variety, but never a distinct species.

Hab. : On rocks between tide-marks or still lower. Prov. Bōshyū, Chōshi and Obama (Prov. Kadzusa), Prov. Hitachi, Onahama (Prov. Iwaki). Tetraspores and cystocarps :—late spring to summer.

PL. XVII, Figs. 1-10. Fig. 1: *Gastroclonium ovale* in nat. state and size.—Fig. 2: portion of the cross-section of stem, $\frac{5}{1}$.—Fig. 3: longitudinal section of a ramulus bearing tetrasporangia cut through a dissepiment, $\frac{5}{1}$.—Fig. 4: portion of the longitudinal section of a ramulus showing the connection of the wall of frond with a dissepiment, $\frac{220}{1}$.—Fig. 5: surface-view of a dissepiment, $\frac{5}{1}$.—Fig. 6: ramulus bearing tetrasporangia, $\frac{3}{1}$.—Fig. 7: one of ramuli bearing tetrasporangia, magnified, $\frac{15}{1}$.—Fig. 8: tetrasporangium, $\frac{225}{1}$.—Figs. 9-10. tetrasporangia divided into more than four, $\frac{220}{1}$.

Gastroclonium Kuetzing 1843.

いそまつ属.

RHODYMENIACEAE. だるす科.

體ハ圓柱狀ニシテ分岐シ, 中空, 所々ニ多角形ノ細胞ヨリ成レル横隔膜ヲ以テ區劃セラレ, 下部時トシテハ中實ニシテ莖ノ如キ觀ヲ呈ス. 枝ハ中空ニシテ所々縊レ, 其縊レタル所ニ隔

膜ヲ有シ、縦ニ體ノ内腔ヲ走レル絲ヲ以テ此隔膜ト體壁トヲ結ブ；體壁ノ内層ハ稍大ナル細胞ヨリ成リ、外層ハ小ニシテ圓形一多角形ノ細胞ヨリ成ル。囊果ハ稍球狀ニシテ果皮ヲ存シ、果皮ノ内壁ハ網狀ノ絲組織ヲ以テ稍球狀ノ仁ヲ包圍ス、果孔ナシ；果胞子ハ倒卵形ニシテ胎座ヨリ各方面ニ放射狀ニ集ル。四分胞子囊ハ小枝ニ散在シ或ハ密集シ、三角錐形ニ分裂ス。精子器ハ表皮細胞ヨリ變成セル極メテ小サキ細胞ニシテ體ノ表面ニ群集ス。

此屬ハ Kuetzing 氏ノ設ケタル所ニシテ Lomentaria (ふしつなぎ属、岡村日本海藻圖說第一卷第一〇三頁)、Champia (わつなぎさう属、岡村全上第九五頁)、Chylocladia 等ト互ニ相類似スル點多キヲ以テ從來種類ノ彼是互ニ移動シタルモノ少ナカラザリシガ、今日ニテハ下ノ如キ相違ヲ以テ此等親緣ノ屬ト區別スルニ至レリ；即チ Chylocladia 屬ハ果皮ノ内層ニ全ク網狀ノ絲組織ヲ欠クカ或ハ只僅ニ其殘片ヲ留ムルノミト云ヘル性質ニ依テ他ノ三屬ト區別シ、本屬ハ囊果ニ果孔ナキヲ以テ Lomentaria 及 Champia ト分ツ。

本屬ニ屬スル種類ハ約六七種ニシテ、概予大西洋ノ產ナリ；歐米ノ西岸ニ產シ、又ニウホルラント及ビ印度洋ニアルモノアリ。本邦下ノ一種アルノミ。

Gastroclonium ノ名ハ Gaster (腹) ト Clon (小枝) トヨリ成ル；即チ小枝ノ中空ナルニ取レリ。

Gastroclonium ovale (Huds.) Kuetz.

いそまつ 岡村稱。

第 XVII 圖版，I-10 圖。

莖ハ中實、圓柱狀ニシテ長ク、下部分岐セル根ヲ以テ直立シ、稍叉狀ニ分岐シ、枝ハ上部ニ至テ各方面ニ小枝ヲ複總狀ニ生ズ、

高サ 5-10 cm. アリ。小枝ハ中空ニシテ 3-10 個或ハ尙ホ多クノ關節ヲ存シ, 間部ハ輕ク縫レ, 基部ノ一節ハ他ノ節ヨリ長シ; 小枝ノ長サ 0.5-15 mm. ニ達シ太サ 2-3 mm. アリ。四分胞子囊ハ小枝ニ散在ス。囊果ハ稍球狀ニシテ小枝ニ坐ス。色ハ帶綠紫紅色又ハ綠色苟クハ紫紅色ナリ, 又往々褪色シタル如キモアリ。質ハ多肉ナレドモ, 乾燥スルトキハ小枝ハ膜質トナリテ多少紙ニ付着シ, 莖ハ稍軟骨様ニシテ付着セズ。

產地: 潮線間ノ岩石ニ生ズ。房州銚子, 小濱(上總), 常陸, 小名濱(磐城)。四分胞子及ビ囊果: 六一八月。

分布: 大西洋ノ兩岸。

本邦所產ノ植物ヲ歐洲模範ノモノト比スルニ著シキ差ハ見出ス能ハザレドモ, 雖小枝ノ關節ノ數多キヲ異ナリトス。歐洲ノ植物中ニテモ Kuetzing 氏ノ *Gastroclonium subarticulatum* ト命ジタルモノ (Kuetz. Tab. Phyc. XV, t. 98) ハ本邦ノモノ、如ク多數ニ關節シタル小枝ヲ有スレドモ, 氏ノ圖ニ依テ見ルニ, 各基部ノ一節ハ模範植物ノ小枝ノ關節ナキモノ、如クニシテ長シ。本邦所產ノモノニテモ小枝ノ基部ノ一節ハ殘餘ノモノヨリモ長ケレドモ, 太西洋ノモノ、如ク長カラズ。然レドモ, 太西洋所產ノ植物中ニテモ小枝ノ長サト其關節ノ數トニ於テ之ヲ模範タルモノト比スルニ, 種々差等アルニモ拘ラズ收メテ以テ一種トナスヲ見レバ(例ヘバ *Gastr. subarticulatum* Kuz., *Gastr. umbellatum* Kuetz. ノ如キ)吾人ハ本邦所產ノ植物ヲ歐洲ノモノト同一ノ種類ナリト考フルヲ以テ至當トス; 太西洋ノ植物中小枝ノ長キモノハ 3-20 mm. ニ達スルモノアリテ關節ノ數亦一定セズ。之ニ依テ他日萬一同一種ナラザルノ點ヲ發見スルコトアリトスルモ, 或ハ變種ト云フ程ノモノニシテ, 決シテ別種トスルニ足ラズ。

第 XVII 圖版, 1-10 圖。1: いそまつノ自然ノ狀態, 2: 莖ノ橫斷面ノ一部, 3: 四分胞子囊ヲ有スル小枝ヲ橫隔膜ト共ニ

縦断シタルモノ, $\frac{54}{1}$.—4: 小枝ノ縦断面ノ一部ニシテ横隔膜ト體壁ノ内層トノ關係ヲ示ス, $\frac{220}{1}$.—5: 横隔膜ノ表面, $\frac{54}{1}$.—6: 四分胞子囊ヲ有スル小枝, $\frac{3}{1}$.—7: 全上ノ一廓大シタルモノ, $\frac{15}{1}$.—8: 四分胞子囊, $\frac{225}{1}$.—9-10: 四個以上ニ分裂シタル四分胞子囊, $\frac{220}{1}$.

Eudesme virescens (Carm.) J. Ag.

Nom. Jap.: *Okinawa-modzuku*.

PL. XVII, Figs. 11-15.

Eudesme virescens (Carm.) J. Ag. Till Alg. Syst. IV, p. 31; De Toni Syll. Alg. III, p. 404.—*Mesogloia virescens* Carm. in Hook. Br. Fl. II, p. 387; J. Ag. Sp. Alg. I, p. 56; Harv. Phyc. Brit. t. 82; Id. Ner. Bor. Amer. t. X, A-B.—*Mesogloea Hornemannii* Suhr in Kuetz. Tab. Phyc. VIII, t. 9, f. II.—*Mesogloea Zosterae* Kuetz. Tab. Phyc. VIII, t. 5, f. I.—*Linkia Zosterae* Lyngb. Hydrophyt. Dan. p. 194, t. 66.—*Myriocladia virescens* Crouan. Fl. Finist. p. 165.

Hab.: Kerama (Riukiu). Sporangia:—late in spring.

Remarks: Though the fresh colour and habitat of this plant is not known to me, specimens sent to me being dried, I put the plant in this species from its structure and from the comparison with a reliable European specimen of this species.

PL. XVII, Figs. 11-15. Fig. 11: *Eudesme virescens* drawn from a dried specimen, $\frac{1}{1}$.—Fig. 12: subterminal growing portion of the axial filament; *f*, assimilatory filaments; *h*, hair; $\frac{390}{1}$.—Fig. 13: one of the axial filaments detached; *f*, assimilatory filaments; *h*, hair; *r*, rhizoid; $\frac{220}{1}$.—Fig. 14: gametangia, $\frac{600}{1}$.—Fig. 15: same emptied, $\frac{220}{1}$.

Eudesme J. Agardh 1880.

おきなはもづく属

CHORDARIACEAE. まつも科.

體ハ中位ノ大サニテ,絲狀,分岐シ,縱走絲ノ緩ク結合セル東ヨリ成リ,内部ハ中空ナラズ;此絲ハ其頂端下ニ於テ介生的分裂ニ依テ伸張スル細胞列ヨリ成リ,各方面ニ念珠狀ニ連ナレル屈曲セル枝ヲ出シ,此枝密ニ相集リテ多量ノ粘質ヲ以テ結合セラレ,以テ體ノ皮層ヲナス;此皮層ヲナスモノ即チ類化絲ナリ.單子囊ハ倒卵形ニシテ類化絲ノ基部ニ生ズ. 複子囊(即チ「ガメート」囊)ハ類化絲ノ上部ノ細胞ヨリ變成シ,其漸ク大ナルニ至レバ多少長キ隆起ヲ生ジテ側面ニ枝ノ如ク出デ 縱横ノ分裂面ニテ數多ノ室ニ分タル.

三乃至五(?)種アリテ太西洋ノ兩岸,ニウホルランド及タスマニアノ沿岸ニ生ジ,紅海ニモ産ス.

Eudesmeノ名ハ Eu(善キ)ト desme(糸ノ束)トヨリ成ル即チ體ノ絲組織ヨリ成レルニヨルナリ.

Eudesme virescens (Carm.) J. Ag.

おきなはもづく 岡村稱.

第 XVII 圖版, 11-15 圖.

體ハ 2-3 dm. 長ク,絲狀ニシテ細ク,綠褐色,柔粘質ニシテ多ク分枝ス;枝ハ長クシテ多數ノ小枝ヲ存ス. 縱走スル絲ハ周圍ニ向テ水平ニ分岐シ以テ類化絲ヲナシ,此絲ハ類化絲ヨリモ太シ. 類化絲ハ上部灣曲シ其關節ハ幅ヨリモ稍長シトス. 質甚シク柔滑ニシテ紙ニ固着ス. 色ハ綠褐色ナレド乾燥スルトキハ暗褐色トナル.

產地：琉球慶良間。子囊：一六月。

分布：太西洋中英、佛、スカンジナビア、フロリダ、グアドュラップ島等及コダノ灣、ムルマン海；藻洲產ノモノモ同一ナルヤ不明。

予ノ有スル標品ハ乾燥シタルモノニシテ、產地ノ狀況及ビ新鮮ノ時ノ体色ヲ詳ニセザルヲ以テ、其果シテ本種ニ屬スルヤ否ヤ稍明ナラザルガ如シト雖モ、予ハ體ノ構造ト歐州ノ標品トニヨリテ之ヲ本種ニ置ク。歐州ノモノハ岩石及他ノ海藻上ニ付着シ又もしほぐさノ葉上ニ付着スト云フ。

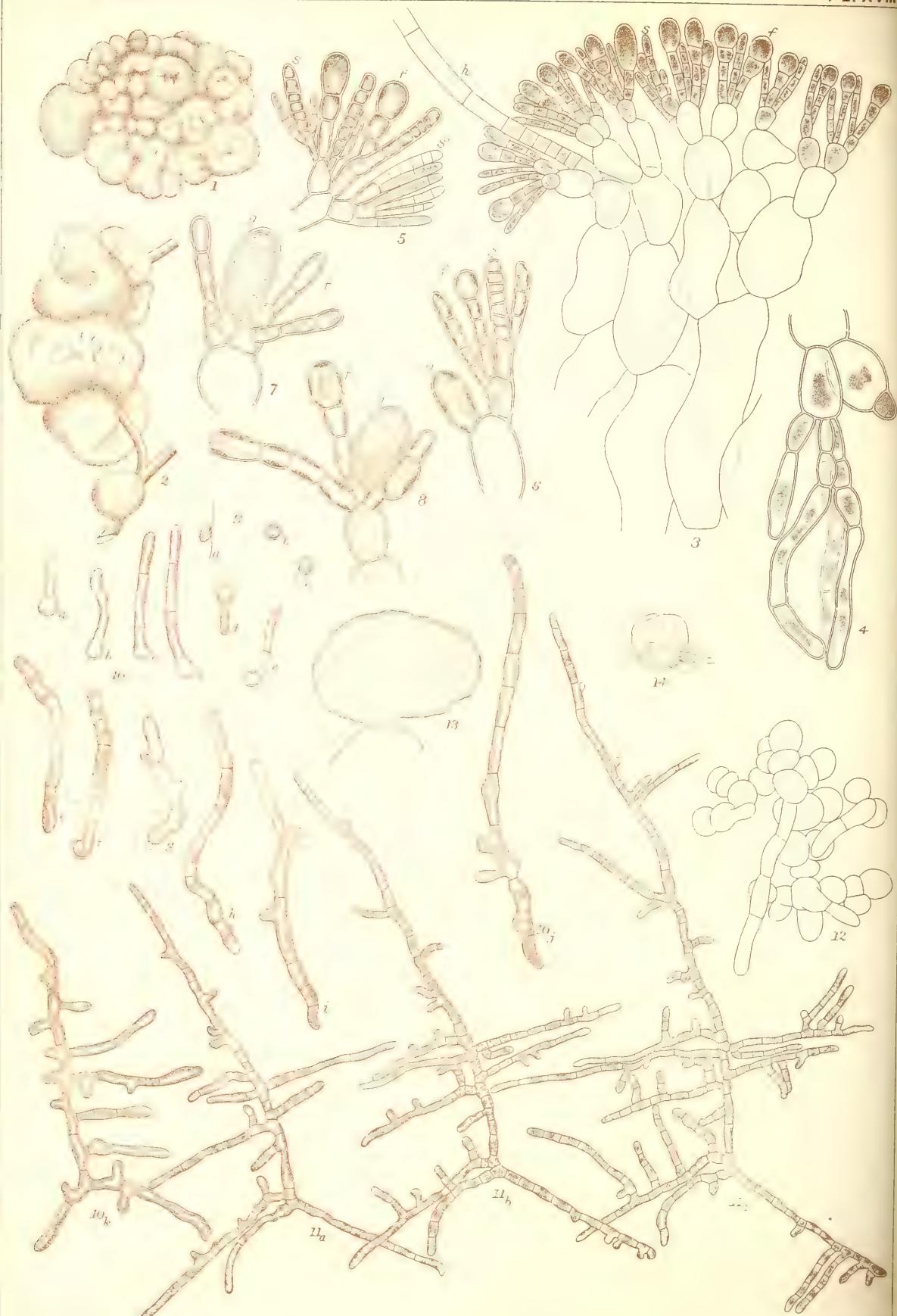
第XVII圖版、11-15圖。11：乾燥標品ヨリ畫キタルおきなはもづく、12：中心部ノ絲ノ頂端下ニ於テ介生成長ヲナス狀；f.類化絲；h.毛； $\frac{390}{1}$ —13：縱走スル絲ノ一條ヲ分離シタルモノ；f.類化絲；h.毛；r.根樣絲； $\frac{220}{1}$ —14：ガメート囊即チ複子囊， $\frac{600}{1}$ —15：同上ノ空虛トナレルモノ， $\frac{220}{1}$ 。

Leathesia difformis (L.) Aresch.

Nom. Jap.: *Nebari-mo*.

PL. XVIII, Figs. 1-14.

Leathesia difformis (L.) Aresch. *Phyc. Scand.* p. 376; Hauck Meeresalg. p. 355; Okam. Alg. Jap. Exsic. (日本海藻標品第二帙), No. 89; 岡村、日本藻類名彙 p. 123; De Toni Syll. Alg. III, p. 422.—*Tremella difformis* L. *Fl. Suec.* p. 429.—*Chaetophora marina* Lyngb. Hydrophyt. Dan. p. 193, t. 66 A.—*Leathesia tuberiformis* Gray; Harv. Phyc. Brit. t. 324.—*Leathesia marina* J. Ag. Sp. Alg. I, p. 52; Kuetz. Sp. Alg. p. 543.—*Corynophloea baltica* Kuetz. Phyc. Gener. p. 331; Id. Sp. Alg. p. 543.—*Corynophora baltica* Kuetz. Tab. Phyc. VIII, t. 2, f. II.?



K. Okam. del.

S. Kondo sc.

10 2 1 9 7 11a 5 8 13 11b 6 14 3 11c 12 4

Leathesia difformis (L.) Aresch. ねばりも。

Hab.: On rocks a little below the high tide-mark, often growing together with *Hydroclathrus concellatus*, &c. Nagasaki; Provs. Tōtōmi, Suruga, Boshyū and Noto; Hakodate.

Remarks: In our plants a frond bearing gametangia sometimes ripens sporangia in the same body, as it is shown in Fig. 6.

I have been fortunate enough to study the development of this plant from zoospores. Though I was not able to follow every stage of its development by culturing one and the same material, it succeeded with me to study different materials at different times to learn the formation of a very young frond from the confervoid protonema-like filaments, as it is illustrated in Figs. 9-14.

PL. XVIII, Figs. 1-14. Fig. 1-2: *Leathesia difformis* in nat. state and size.—Fig. 3: portion of the radial longitudinal section of frond; *f*, assimilatory filaments; *h*, hair; *s*, gametangia; $\frac{390}{1}$.—Fig. 4: root-fibres, $\frac{500}{1}$.—Figs. 5-8: gametangia and sporangia; *f*, assimilatory filaments; *s*, gametangia; *s'*, the same emptied; *g*, sporangia; Figs. 5-6, $\frac{600}{1}$; Figs. 7-8, $\frac{500}{1}$.

Figs. 9-14: different stages of development from zoospores. Fig. 9 *a-e*: 6th, June, 1903, $\frac{600}{1}$; *a*, zoospore, $3 \times 5 \mu$; *b*, zoospore just settled, 5μ in diam.; *c*, spore just germinated; *d*, a little advanced, 16μ long; *e*, one joint formed, 28μ long.—Fig. 10 *a-k*: all different materials; *a*, 19μ long (12th, July, 1904); *b*, 33μ (12th); *c*, 41μ (13th); *d*, $55 \times 5 \mu$ (14th); *e*, $66 \times 5 \mu$ (15th); *f*, 66μ (15th); *g*, 55μ (15th); *h*, 96μ (15th); *i*, 96μ (16th); *j*, 146μ (16th); *k*, 137μ (18th); $\frac{335}{1}$.—Figs. 11 *a-c*: different stages of the same material; *a*, ca. 330μ long (21th, July, 1904); *b*, ca. 374μ (23th); *c*, ca. 462μ (26th); $\frac{335}{1}$.—Fig. 12: very young frond just fromed from the protonema-like confervoid filaments, seen from the under surface, May, 1903; $\frac{600}{1}$.—Fig. 13: young frond a little advanced, the inner tissue still dense and compact, (May, 1903); $\frac{16}{1}$.—Fig 14: same still advanced, the inner tissue already hollowed up, (May. 1903); $\frac{1}{1}$.

Leathesia Gray 1821.

ねばりも属.

CHORDARIACEAE. まつも科.

體ハ小サキ球狀又ハ塊狀ニシテ, 始メハ中實ナレドモ後不規則ニ分裂シテ中空トナリ, 多肉ニシテ粘滑ナリ. 體ハ遠心的ニ成長シ, 一ノ中心點ヨリ放射狀ニ發出セル絲ヨリ成ル; 此絲ハ長楕圓形ノ大ナル細胞ヨリ成リテ屢々叉狀ニ分岐シ, 外方ニハ細キ類化絲トナル. 類化絲ハ小サキ細胞ノ念球狀ニ關節セル絲ニシテ粘液ノ内ニ埋マリ, 單條ニシテ短ク棍棒狀ナリ; 體ハ幼キ類化絲ノ頂部ノ細胞分裂ニ依テ成長ス. 單子囊ハ楕圓形ニシテ類化絲ノ基部ニ生ズ. 複子囊即チ「ガメート」囊ハ絲狀ニシテ縦ニ一列ニ區劃セラレ, 類化絲ノ基部ニ生ズ.

此處ニ圖セルモノハ此屬ノ模範種ナレドモ, 其他尙ホ五六種アリ, 多クハ太西洋, 地中海等ニ產ス.

屬名ノ起源ハ G. R. Leathes 氏ノ名譽ノ爲メニ付シルタナリ. 本屬ノ植物ハ概乎球形ナルヲ以テ以前ハ Chaetophora, Tremella Ulva (以上綠藻類), Nostoc (藍藻類) 等ト混ゼラレタルコトアリ

Leathesia difformis (L.) Aresch.

ねばりも 岡村稱.

第 XVIII 圖版, 1-14 圖.

体ハ稍球狀ニシテ種々ニ分裂シ, 始メ中實ナレドモ後中空トナリ, 類化絲ハ棍棒狀ニシテ頂端ノ細胞ハ稍膨大ス; 體ノ大サハ極メテ種々ニシテ塊狀ヲナス. 色綠褐色ニシテ, 乾燥スル時ハ暗褐色トナル. 頗質ル粘滑ニシテ紙ニ固着ス.

產地：高潮線ヨリ少シ低キ處ノ岩石ニ付着シ、往々かごめのり、ふくろのり等ト相重疊ス。長崎、遠江、駿河、房州、能登、函館。子囊：一晚春。

分布：太西洋ノ兩岸；喜望峰(?)。

本邦所產ノモノニハ「ガメート」囊ヲ有スル体上ニ時トシテ單子囊ヲ熟スルモノアリ、第6圖ニ示ス如シ。

予ハ此植物ノ游走子ヨリ發生シテ嫩キ體形ヲ成ス迄ノ順序ヲ知ルヲ得タリ；尤モ同一ノ材料ヲ培養シテ連續シタル經過ヲ學ブコトハ事情ノ許ス能ハザルモノアリシカドモ、明治三十六七年間房州白濱ニ於テ五月ヨリ七月迄ノ間ニ種々ノ標品ニヨリテ種々ノ發育狀態ヲ研究シ、兎ニ角游走子ヨリ發育シテ一列ノ細胞ヨリ成レル *Confervula* 狀ヲナセル綠褐色ノ綠狀體トナリ更ニ嫩キ體形(第12圖)トナル迄ノ經過ヲ綜合的ニ知ルヲ得タリ。此 *Confervula* 狀ノ絲狀體ハ猶ホ彼ノ蘚苔類ノ前苗體(*Protonema*)ニ相當スルモノナリ。第9圖ヨリ12圖ニ至ルモノ即チ此順序ヲ示ス；中ニ就キテ11圖a-cハ同一ノモノ、經過ナルヲ以テ數日間ニ其如何ニ變化シ行クカヲ見ルニ足ラン。此前苗體ノ如キ絲狀體ニテ岩石上ヲ匍匐發育シ、其充分成長スルニ至テ第12圖ニ示ス如ク枝ノ所々球狀ノ細胞トナリ互ニ相接近シテ組織ヲナシ、以テ嫩キ體ヲ形成スルコトヲ見ルベシ。既ニ斯ノ如キ體形ヲナスニ至レバ、絲狀體ハ漸次其後方ヨリ枯死シテ復タ原形ヲ留メザルニ至ル；而シテ12圖ノ如キ球狀ノ細胞ハ漸次増加シ、相密集シテ組織ヲナシ、始メハ第13圖ニ示ス如ク中實ノ球狀體ヲナセドモ、其漸ク長ズルニ隨テ中空トナルコト第14圖ニ示ス處ナリ；斯ノ如キニ至レバ既ニ母體ト同様ノ程度ニ達シタルニテ其後ハ只漸次其大サヲ增大スルニ止ルノミ。

第XVIII圖版、1-14圖。1-2：ねばりもノ自燃狀態、1-3：體ヲ

放射狀ニ縦斷シタルモノ、一部；*f*、類化絲；*h*、毛；*s*、ガメート囊
 $\frac{390}{1}$.—4：根毛， $\frac{500}{1}$.—5-8：「ガメート」囊及游走子囊（即チ單子囊）；*f*、
類化絲；*s*、「ガメート」囊；*s'*、「ガメート」囊ノ空虛トナレルモノ；*g*、
單子囊；5-6， $\frac{600}{1}$ ；7-8， $\frac{500}{1}$.

9-14：游走子ヨリ發生シタル發育ノ順序。9 *a-e*：明治三十六年六月六日， $\frac{600}{1}$ ；*a*，游走子， $3 \times 5\mu$ ；*b*，游走子ノ方ニ靜止シタルモノ，直徑 5μ ；*c*，其方サニ發芽シタルモノ；*d*，少シク進ミタルモノ， 16μ 長シ；*e*，一關節ヲ形成シタルモノ，長サ 28μ .—10 *a-k*：總テ別々ノ材料ヨリ取ル；*a*， 19μ （明治三十七年七月十二日）；*b*， 33μ （十二日）；*c*， 41μ （十三日）；*d*， $55 \times 5\mu$ （十四日）；*e*， $66 \times 5\mu$ （十五日）；*f*， 66μ （十五日）；*g*， 55μ （十五日）；*h*， 96μ （十五日）；*i*， 96μ （十六日）；*j*， 146μ （十六日）；*k*， 137μ （十八日）； $\frac{335}{1}$.—11 *a-c*：同一ノ材料；*a*，約 330μ （明治三十七年七月二十一日）；*b*，約 374μ （二十三日）；*c*，約 462μ （二十六日）， $\frac{335}{1}$.—12：絲狀体ヨリ漸ク成體ヲ形成セルモノニシテ，其裏面ヨリ見タルモノ，明治三十六年五月， $\frac{600}{1}$.—13：稍成長シタルモノ，内部ノ組織ハ未ダ中實ナリ（全五月）， $\frac{16}{1}$.—14：尙ホ一層成長シ内部既ニ中空トナレルモノ，（全五月）， $\frac{1}{1}$.

Cutleria adspersa (Roth) De Not.

Nom. Jap. : Keberi-gusa.

PL. XIX, Figs. 1-10.

Cutleria adspersa (Roth) De Not. Specim. Alg. Ligust., p. 10; J. Ag. Sp. Alg. I, p. 105 (excl. syn. *Padina Spanneri* Menegh.); Kuetz. Sp. Alg. p. 558; Id. Tab. Phyc. IX, t. 45, f. II; Zanard. Icon. Phyc. Adriat., II, p. 67, t. 57; Hauck Meeresalg. p. 406; Ardis. Phyc. Medit. II, p. 54; De Toni Syll. Alg. III, p. 303.—*Ulva adspersa* Roth Catal. bot. III, p. 324, t. 2, f.B.—*Cutleria pardalis* De Not., Kuetz.



17 2 7 10 5 4 8 12 9
 Cladonia aries (Roth) De Not. ケリグサ Figs. 1-10.
 18 3 6 9 11 12 13 14
 Cladonia sinensis (Roth) Derb. & Spreng. ふくろのり Figs. 11-12.

Sp. Alg. p. 558 (non *Spatoglossum Spanneri* Menegh.)—*Zonaria adspersa* J. Ag. Medit. p. 38.

Hab. : On rocks and stones in 4-5 fath. at the Strait of Hirado ; Futaе (Amakusa Isl.) ; Cape Nomo ; Strait of Hirado ; Takano-shima (Bōshyū). Sporangia : late spring—summer.

PL. XIX, Fig. 1-10. Fig. 1 : portion of frond bearing sori, $\frac{1}{1}$.—Fig. 2 : portion of sterile and many-lobed frond, $\frac{1}{1}$.—Fig. 3 : surface-view of apical hairs fringing the growing margin of frond, $\frac{390}{1}$.—Fig. 4 : radial-longitudinal section of the growing margin of frond, $\frac{390}{1}$.—Fig. 5 : portion of the cross-section of frond showing root-fibres and cellular arrangement, $\frac{91}{1}$.—Fig. 6 : one of root fibres, $\frac{220}{1}$.—Fig. 7 : portion of surface-view of frond near growing margin, $\frac{390}{1}$.—Fig. 8 : cross-section of frond bearing female sori, $\frac{54}{1}$.—Fig. 9 : portion of a female sorus ; *p*, female gametangia, full and empty ; *f*, paraphyses, $\frac{220}{1}$.—Fig. 10 : portion of a male sorus ; *f*, paraphyses ; *m*, male gametangia ; *e*, same emptied ; $\frac{390}{1}$.

Cutleria adspersa (Roth) De Not.

けべりぐさ 岡村稱.

第 XIX 圖版, 1-10 圖.

Cutleria (Grev. 1830, むちも屬, Cutleriaceae) の性質ハ岡村, 日本海藻圖說第百十五頁ニアリ. 屬ノ名ハ Sidmouth Cutler 女史ノ名譽ノ爲ニ付シタルナリ.

體ハ扇狀又ハ腎臟形ニシテ斜上シ, 10-15 cm. の半徑ヲ有スルモノアリ; 初メハ全線ナレドモ, 後不規則ニ分裂シ, 裂片楔形ヲナス; 幼者ハ綠褐色ニシテ, 薄キ革質ヲナシ, 緣邊ニ綠色ノ長キ毛ヲ生ズレドモ, 老成スルトキハ毛ハ落チ, 厚クナリ, 銅褐色ヲ

呈スルニ至ル。子囊群ハ體ノ兩面ニ點狀ヲナシテ生ジ、漸次相愈合シテ多少明ニ重圈狀ニ列セル不規則ナル班點ヲナス。雌雄ノ「ガメート」囊ハ稍棍棒狀ニシテ概子束狀ニ集レル「バラフヰシス」ノ一側ニ生ジ、其頂端ニ生ズルコトハ極メテ罕ナリトス。色ハ乾燥スルトキハ暗黃褐色トナリ; 質革質ニシテ紙ニ付着スルコト充分ナラズ、破レ易シ。

產地：四五尋ノ處ノ岩石ニ付着ス(平戸海峽); 九州(天草島二江、野母崎、平戸海峽); 鷺ノ島(房州)。子囊：晚春—夏季。

分布：歐洲ノ太西洋沿岸; 地中海(亞弗利加側), 「アドリア」海; 紅海(スエズ)。

第XIX圖版, 1-10圖。1: 子囊群ヲ有スル體ノ一部, 2: 實ナクシテ分裂セル體ノ一部, 3: 成長縁ニ生ズル毛ヲ表面ヨリ見タルモノ, 4: 毛ノ稍落チタル體ノ成長縁ヲ通シテ放射狀線ニ沿ヒテ縱斷シタルモノ, 5: 體ノ横斷面ニシテ組織ノ容子ト根毛トヲ示ス, 6: 根毛, 7: 成長縁ニ近キ表面, 8: 雌性「ガメート」囊群ヲ有スル體ノ横斷面, 9: 雌性「ガメート」囊群ノ一部; p, 雌性「ガメート」囊, 充實セルモノ及ビ空虛トナレルモノ; f, 「バラフヰシス」, 10: 雄性「ガメート」囊群ノ一部; f, 「バラフヰシス」; m, 雄性「ガメート」囊; e, 同上ノ空虛ナルモノ; 1.

Colpomenia sinuosa (Roth) Derb. et Sol.

Nom. Jap.: *Fukuro-nori*.

PL. XIX, Figs. 11-12; PL. XX, Figs. 10-12.

Colpomenia sinuosa (Roth) Derb. et Sol. Mem. Phys. Alg. (1856)
p. II, t. 22, f. 18-20; Kjellm. in Engl.-Prantl. Natürl. Pflanzenfam.

I Th., 2, p. 203; De Toni Syll. Alg. III, p. 489; Okam. Alg. Jap. Exsic. (日本海藻標品) No. 42; 岡村, 日本藻類名彙 p. 117.—*Hydroclathrus sinuosus* Zanard. Icon. Phyc. Adriat. I, p. 109; Thur. in Born. et Thur. Ét. Phyc. p. 12; Hauck Meeresalg. p. 393, f. 171, Ardiiss. Phyc. Medit. II, p. 123.—*Ulva sinuosa* Roth Catal. bot. III; (1797-1806), p. 327, t. 12, f. a.—*Asperococcus sinuosus* Bory; J. Ag. Sp. Alg. I; p. 75.—*Encoelium sinuosum* Ag.; Kuetz. Sp. Alg. p. 552; Id. Tab. Phyc. IX, t. 8.—*Encoelium vesicatum* Kuetz. Sp. Alg. p. 552.

Hab.: On rocks, stones, and branches of *Sargassum* etc., near the high tide-mark, often growing together with *Hydroclathrus cancellatus*, etc.

Remarks: In our materials we find some of paraphyses septate, not being simple and non-articulated, as it is shown in Figs. 11 and 12, ϕ .

PL. XIX, Figs. 11-12. Figs. 11-12: *Colpomenia sinuosa* attached on the branch of *Sargassum* and on stones in nat. state and size.

PL. XX, Figs. 10-12. Fig. 10: group of young paraphyses, $\frac{390}{1}$.—Fig. 11: portion of a young sorus; s , s' , young gametangia; p , p' , paraphyses, $\frac{390}{1}$.—Fig. 12: full-grown sorus; characters same as Fig. 11, $\frac{450}{1}$.

Colpomenia Derb. et Sol. 1856.

ふくろのり属.

ENCOELIACEAE. ふくろのり科.

體ハ囊狀ニシテ, 全ク破レザル若クハ不規則ニ裂ケタル體壁ヲ有シ, 體壁ハ革質ニシテ二層ヨリ成ル; 内層ハ大ナル稍圓キ細胞ノ一二層ヨリ成リ, 外層ハ小サキ細胞ノ一層ヨリ成ル, 此

細胞ハ之ヲ表面ヨリ見レバ殆ド四角又ハ五角形ナリ。『ガメート』囊ハ稜柱狀ニシテ、單細胞ノ「バラフヰシス」ヲ以テ伴ナハレタル子囊群ヲナシ、體ノ表面ニ散在ス；子囊群ハ始メ點狀ヲナシテ現ハルレドモ、後漸次ニ相接近ス。游走子囊(即單子囊)ハ知ラレズ。

Colpomenia ノ名ハ *Colpos* (屈曲又ハ皺、皺) ト *hymen* (膜) トヨリ成ル。只一種ノミニシテ極寒ノ地ヲ除ク外隨處ニ産ス。

Colpomenia sinuosa (Roth) Derb. et Sol.

ふくろのり。

第 XIX 圖版, 11-12 圖; 第 XX 圖版, 10-12 圖。

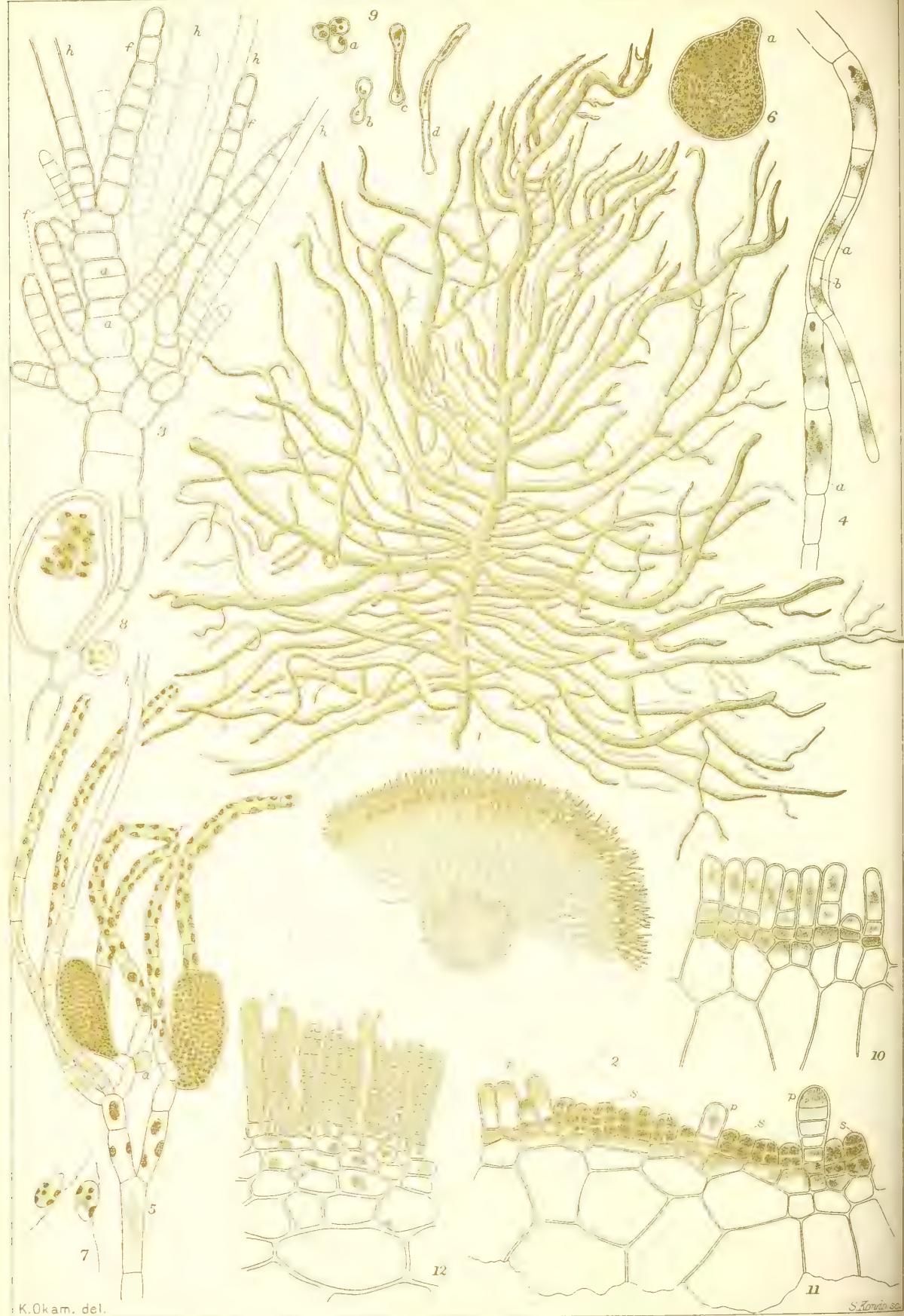
體ハ球形又ハ半球形ニシテ、中空、扁平ナル底部ヲ以テ岩石等ニ付着シ、幼者ハ小ナレドモ、後往々人頭大ニ達ス；表面ハ其小オルモノハ平坦ナレドモ、大ナルニ至レバ凹凸極リナク、又往々破裂シテ薄片ヲナスコトアリ。色黃褐色又ハ綠褐色ニシテ、革質、紙ニ付着スルコト充分ナラズ。

產地：高潮線ニ近キ岩石、海藻等ノ上ニ生ズ。隨所ニ之アリ。

分布：太西洋、地中海、紅海、印度洋、濠洲、太平洋。

備考：本邦所產ノモノニアリテハ「バラフヰシス」ハ多ク單細胞ナレドモ、亦往々一個乃至數個ノ隔膜ヲ以テ分タルヽモノアリ。

第 XIX 圖版, 11-12 圖。 11-12: 岩石及ほんだわらノ枝ニ付着セルふくろのりノ自然ノ狀態。



K. Okam. del.

Mesogloia crassa Suring. ふともづく Figs. 1-9.
Colpomenia sinuosa (Roth) Derb. et Sol. ふくろのり Figs. 10-12.

第XX圖版, 10-12圖. 10:「バラフヰシス」ノ群集セルモノ,
 $\frac{390}{1}$.—11: 幼キ複子囊ノ一部; s, s, 若キ「ガメート」囊; ρ, ρ , 「バラフヰシス」, $\frac{390}{1}$.—12: 充分成熟シタル子囊群; 指字ハ 11圖ニ同ジ,
 $\frac{450}{1}$.

Mesogloia crassa Suring.

Nom. Jap.: *Futo-modzuku*.

PL. XX, Figs. 1-9.

Mesogloia crassa Suring. Illustr. Alg. Jap. I, p. 85, t. X-XII; De Toni Syll. Alg. III, p. 428; Okam. Alg. Jap. Exsic., (日本海藻標品), No. 90; 岡村, 日本藻類名彙 ρ . 124.

Hab.: On rocks and stones between tide marks in calm places. Riukiu, Kagoshima, Amakusa-Isl., Prov. Chikuzen, Kōbe, Provs. Iyo, Sagami, Boshyu and Iwaki.

Remarks: We know, according to the classification given by Kjellman in Engler und Prantl's Natürl. Pflazenfam. I Th., 2, ρ . 221-230, that in plants belonging to the Subfam. *Mesogloiacae* growth of frond is done by the division of upper articulations of young assimilatory filaments and in those belonging to *Eudesmae*, it is done by subterminal cell-division of axial filaments. As the latter is the case in the plant in question we may think that it is not a species of *Mesogloia*. But, as the nature of gametangia is at present unknown, the true position of this plant is not certain. Probably an *Eudesme*?

PL. XX, Figs. 1-9. Fig. 1: *Mesogloia crassa* with branches stretched out, $\frac{1}{1}$.—Fig. 2: half of the cross-section of frond bearing sporangia, $\frac{22}{1}$.—Fig. 3: subterminal growing portion of an axial

filament; α , α , cells dividing; f , f , assimilatory filaments; h , h . hairs, $\frac{600}{1}$.—Fig. 4: one of the rhizoidal filaments showing the mode of replacement of harmed cells; α , α , original filament; b , newly formed filament, $\frac{390}{1}$.—Fig. 5: peripheral filaments bearing sporangia; f , assimilatory filaments; h , hair; a young sporangium, $\frac{390}{1}$.—Fig. 6: sporangium just to discharge zoospores, the wall has swollen out at a , (the wall of sporangium at a is not exact; it must be thin), $\frac{390}{1}$.—Fig. 7: zoospores, $\frac{1300}{1}$.—Fig. 8: zoospores germinated within an empty sporangium; and, a young sporangium at the right side of the filament, $\frac{600}{1}$.—Fig. 9 $a-d$: different stages of germinating spores, $\frac{600}{1}$.

Mesogloia C. Agardh 1817.

もづく属。

CHORDARIACEÆ. まつも科.

體ハ絲狀一圓柱狀ニシテ、多ク分岐シ、全部絲ニテ成リ、柔粘質ヲ以テ結合セラル。各部ハ實質ニシテ軸部ハ概子縦ニ集マレル絲ヨリ成リ、此絲屢々叉狀ニ分岐錯綜シテ或ハ横ニ或ハ縦ニ走リ、其水平ニ外方ニ向テ枝ヲ出スモノ相集リテ皮層ヲナス。皮層ハ髓層(即チ軸部)ノ絲ノ叉狀ニ分岐シタルモノニシテ、稍棍棒狀ヲナシ、下部叉狀ニ分レテ互ニ相密集ス; 下部ノ關節ハ圓柱狀乃至稍麥酒樽狀ニシテ、上部ニハ殆ド球狀ノ稍大ナル關節ヨリ成ル。体ノ伸長ハ幼キ類化絲ノ上部ノ關節ノ分裂ニ依テ成ル。游走子囊(單子囊)ハ概子倒卵形ニシテ類化絲ノ基部ニ生ズ。「ガメート」囊(複子囊)ハ類化絲ノ外方ノ關節ヨリ變成ス(?).

明ニ此屬ノモノトシテ定メラレタル種類ハ二種ニシテ、太西洋ノ北部、地中海及ビ紅海(?)ニ産ス、其最モ能ク知ラレタルモノハ *M. vermiculata* (Engl. Bot.) Le Jol. ニシテ北部太西洋ニ分布。

ス。 本邦所産ノモノハ確ニ此ニ屬スルヤ否ヤ疑ナキ能ハザルコト下ニ記ス所ヲ以テ見ルベシ。

屬ノ名ハ Mesos (中央) ト gloios (柔粘ナル) トヨリ成ル即チ可成リノ粘質ト云フ意。

Mesogloia crassa Suring.

ふともづく。

第 XX 圖版, I-9 圖。

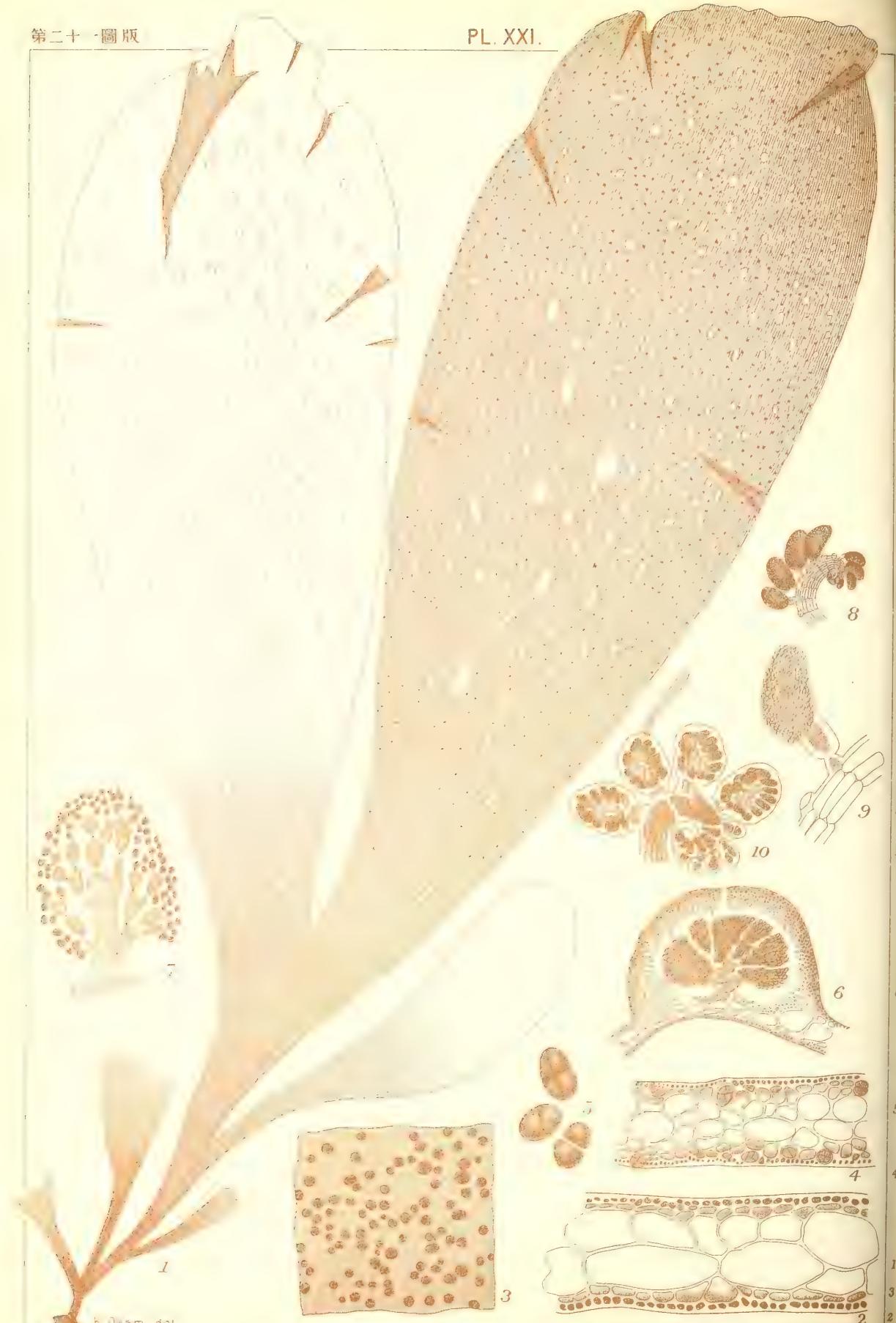
體ハ圓柱狀ニシテ, 下部少シク太ク, 頂端ノ方ニ細ク, 密ニ各方面ニ枝ヲ生ズ; 枝ハ或ハ相接シ或ハ一所ヨリ相集リテ生ズルコトアルモ, 概シテ互生ト稱スルヲ得ベク, 多クハ單條ニシテ僅ニ小枝ヲ存ス。枝皆廣開シ, 種々ニ迂曲シテ恰モ蠕蟲ヲ見ルガ如ク, 枝端ハ其若キモノハ細ケレドモ, 後往々鈍頭ニ終ル, 而シテ枝ノ全面ニ殆ド無色ナル極メテ軟カキ毛葺ヲ存ス。單子囊ハ類化絲ノ基部ニ生ジ無柄ニシテ, 長橢圓形乃至倒卵形ヲナシ, $30\text{-}42\mu$ ノ直徑アリテ, 長サハ略其二倍ナリ。色黃褐色ナレドモ幼キモノハ綠色ヲ帶ブ。體質甚シク粘質ニ富ミ, 乾燥スル時ハ紙ニ固着ス。

產地: 潮線間ノ岩石ニ生ジ靜穩ナル所ヲ好ム。琉球, 鹿兒島, 天草島, 筑前, 神戶, 伊豫, 相模, 房州, 磐城。子囊ハ晚春ヨリ初夏ニ於テ游走子ヲ出ス(房州ニテハ五月末ヨリ六月始メ)。各地採リテ酢ヲ加ヘテ食用トス, すのり, そうめんのりノ名アリ。

備考: 囊ニ Kjellman 氏ガ Engl. u. Prantl's Natürl. Pflanzenfam. Ith., 2, p. 221-230ニ於テ示シタル分類ニ依ルニ, まつも科ノ亞科 Mesogloiacae = 屬スル植物ニアリテハ體ノ成長ハ幼キ類化絲ノ上部ノ關節ノ分裂ニ依テ爲サレ, Eudesmea 亞科 (Eudesme 本書 p. 79

ハ其一ナリ)ノモノハ軸部ヲ作ル絲ノ頂端下ノ細胞分裂ニ依テ
ナサル、コトヲ知ル。今本植物ノ體ノ成長法ヲ見ルニ第3圖
ニ示ス如ク方ニ *Eudesme* ノ諸屬ノナス所ニ符合スルヲ以テ予
ハ之ヲ *Mesogloia* 屬ノモノニアラザルベシト思惟ス。然レドモ
今其「ガメード」囊ノ性質ヲ詳ニセザルヲ以テ之ガ正當ナル分類
上ノ位置ヲ定ムル能ハザレドモ、予ハ多分 *Eudesme* ナランカト
ノ考ヲ有スルモノナリ。

第XX圖版, 1-9圖. 1: ふともづくノ枝ヲ左右ニ擴ゲタルモノ,
1-2: 子囊ヲ有スル體ノ横斷面ノ半分,²²₁.—3: 軸部ノ絲ノ
頂端下ノ成長點; a, a, 細胞分裂ヲナス部分; f, f, 類化絲; h, h, 毛,
⁶⁰⁰₁.—4: 縦走セル根様絲ノ損ジタル細胞ヲ補缺スル方法; a, a,
在來ノ絲; b, 新ニ形成セラレタル絲,³⁹⁰₁.—5: 單子囊ヲ有スル類
化絲; f, 類化絲; h, 毛; a, 幼キ單子囊,³⁹⁰₁.—6: 將ニ游走子ヲ放
出セントスル子囊ニシテ膜ハ a 部ニテ膨レタリ,(彫刻者ノ
誤リニテ a 部ノ膜厚ケレドモ是ハ極メテ薄キナリ).—7: 游走
子,¹⁶⁰⁰₁.—8: 子囊ノ内ニテ游走子ノ萌發シタルモノ; 右側ニアル
ハ幼キ子囊ナリ,⁶⁰⁰₁.—9 a-d: 萌發セル游走子ノ漸次發育スル
モノ,⁶⁰⁰₁.



Rhodymenia pertusa (P. et R.) J. Ag. ああだるき, Figs. 1-7.
Amansia japonica (Holm) Okam. ひをどしぐさ, Figs. 8-10.

Rhodymenia pertusa (Post. et Rupr.) J. Ag.

Nom. Jap. : *Ana-dulse.*

PL. XXI, Figs. 1-7.

Rhodymenia pertusa (Post. et Rupr.) J. Ag. Sp. Alg. II, p. 376 ;
Id. Epicr. p. 329 ; Kjellm. Algae Arct. Sea p. 150 ; De Toni Syll.
Alg. IV, p. 511, 岡村, 日本藻類名彙, p. 43.—*Porphyra pertusa*
Post. et Rupr. Illustr. Alg. p. 20, t. XXXVI ; Kuetz. Sp. Alg. p. 693.

Hab. : Urupp Isl. ; Akkeshi, Tomakomai and Esashi in Hokkaidō ; Prov. Rikuzen. Cystocarps and tetrasporangia : June—Aug. (Akkeshi).

PL. XXI, Figs. 1-7. Fig. 1: frond bearing cystocarps, in nat. state and size; they have been omitted on the left-hand frond.—Fig. 2: cross-section of frond, ca. 100 μ thick, $\frac{220}{1}$.—Fig. 3: surface-view of frond bearing tetrasporangia, $\frac{54}{1}$.—Fig. 4: cross-section of frond bearing tetrasporangia, $\frac{91}{1}$.—Fig. 5: tetrasporangia, $\frac{220}{1}$.—Fig. 6: vertical section of a cystocarp, $\frac{91}{1}$.—Fig. 7: placental cell and "Stielzelle," ca. $\frac{220}{1}$.

Rhodymenia Greville 1830.

だるす属

RHODYMENIACEAE. だるす科

體ハ扁平, 膜質, 叉状又ハ掌状ニ分歧シ, 往々副枝ヲ生ズ, 二層ヨリ成ル; 内層ハ圓形一多角形ノ大ナル細胞ヨリ成リ, 外層ハ多少縱ニ連ナレル小細胞列ヨリ成ル——四分胞子囊ハ表皮

細胞ヨリ變成シ、球狀ニシテ往々群集シ、十字様ニ分裂ス。精子器ハ表皮細胞ヨリ變ジ、體ノ表面ニ群集シ、精子ハ小サキ無色ノ細胞ニシテ個々縱ニ並列ス。囊果ハ體ノ表面若クハ緣邊ニ生ジ、半球狀ノ果皮ヲ存ス；果皮ハ頂端ニ開口シ、外層ノ細胞ハ放射狀ニ列シ、内層ノモノハ重圈狀ニ並ビ、球狀又ハ分裂セル單塊ノ仁ヲ藏ス。仁ハ別ニ之ヲ包ム被膜ナク、底部ノ小サキ胎座細胞ニ付着ス；胎座細胞ノ上ニハ一個ノ大ナル仁柄細胞 (Stielzelle) アリテ複總狀ニ分枝シ、各方面ニ放射狀ニ出デ、其幼キ枝ノ各關節漸次成熟シテ倒卵形ノ果胞子トナリ、一定ノ順序ナク團集シ、恰モ粘質ヲ以テ互ニ結合セラレタル如ク集ル。

未ダ充分確定セラレザル種類約二十種アリテ各地ノ海ニ產ス。屬名ハ Rhodos (紅色)、ト hymen (膜) トヨリ成レリ、即チ紅色ノ膜狀ヲナセル體形ニ取レルナリ。だるすノ和名ハ歐洲ニテ之ヲ dulse ト云ヒ食用トナスニヨリ、其俗稱ニ採リタルナリ。

Rhodymenia pertusa (Post. et Rupr.) J. Ag.

あなだるす。岡村稱。

第XXI圖版，1-7圖。

體ハ扁平葉狀ニシテ下部楔形ヲナシ明ニ莖ノ如キ觀ヲ呈シ、體ノ下部ニ於テ往々叉狀又ハ數多ニ分レ、各々大ナル倒卵形又ハ笠形ノ體ヲナス時ニ全ク分裂セザルモアリ；高サ 10-25 cm. ニ達シ、幅上部ノ廣キ所ニテ 5-10 cm. アリ。頂端ハ始メハ圓ケレドモ後裂ケ又ハ欠損スルコトアリ、而シテ始メハ體ノ全面ニ孔ナケレドモ後圓形乃至不規則ノ形セル概子小形ノ

孔ヲ生ズ。四分胞子囊ハ體ノ表面ニ不規則ナル斑狀ヲナシテ群集ス。囊果ハ體ノ兩面ニ生ジ纈粟粒大ニシテ半球狀ヲナス。

產地：得撫島；厚岸灣，苦小枚，江差(北海道)；陸前氣仙郡米ヶ崎。果實：六—八月(厚岸)。

分布：カムサツカ，オコーツク，グリーンランド，スピツツペルゲン。

第XXI圖版. 1-7圖. 1: あなたるすノ形狀ノ稍全存セルモノ，左ノ半分ハ囊果ヲ略シタリ，1—2: 體ノ橫斷面，約 100μ ノ厚サアリ， $\frac{220}{1}$ —3: 四分胞子群ヲ有スル體ノ表面ノ一部， $\frac{54}{1}$ —4: 同上ノ橫斷面， $\frac{91}{1}$ —5: 四分胞子， $\frac{200}{1}$ —6: 囊果ノ縱斷面， $\frac{91}{1}$ —7: 胎座細胞及仁柄細胞ヨリ胞子絲ノ分枝スル狀， $\frac{220}{1}$ 。

Antheridia and Procarps

of

Amansia japonica (Holmes) Okam.

PL. XXI, Figs. 8-10.

Addition to the description of *Amansia japonica* (Holmes) Okam. given in Okamura's Illustrations of the Marine Algae of Japan p. 39. PL. XIV:—

Antheridia and procarps are transformed from hair-leaves which are arranged in a row along the dorsal median line of young pinnulae. Antheridia are ovoid or oblong. They are formed in May at Enoshima.

PL. XXI, Figs. 8-10. Fig. 8: apical portion of a pinnula bearing antheridia, $\frac{54}{1}$.—Fig. 9: one of antheridia magd., $\frac{175}{1}$.—Fig. 10: procarps in different stages of their development, $\frac{175}{1}$.

ひをどしぐさノ精子器及胎原.

第 XXI 圖版, 8-10 圖.

ひをどしぐさ, *Amansia japonica* (Homes) Okam. (岡村, 日本海藻圖說第一卷, 第三冊, 第五十二頁, 第十四圖版) ノ精子器及胎原ハ幼キ小羽枝ノ背面ノ中央線ニ沿ヒテ一列ニ生ズル毛狀枝ヨリ變成シ, 精子器ハ卵形又ハ俵狀ナリ. 明治三十七年五月助手東氏相州江ノ島ニ採リタルニ依リテ知ルヲ得タリ.

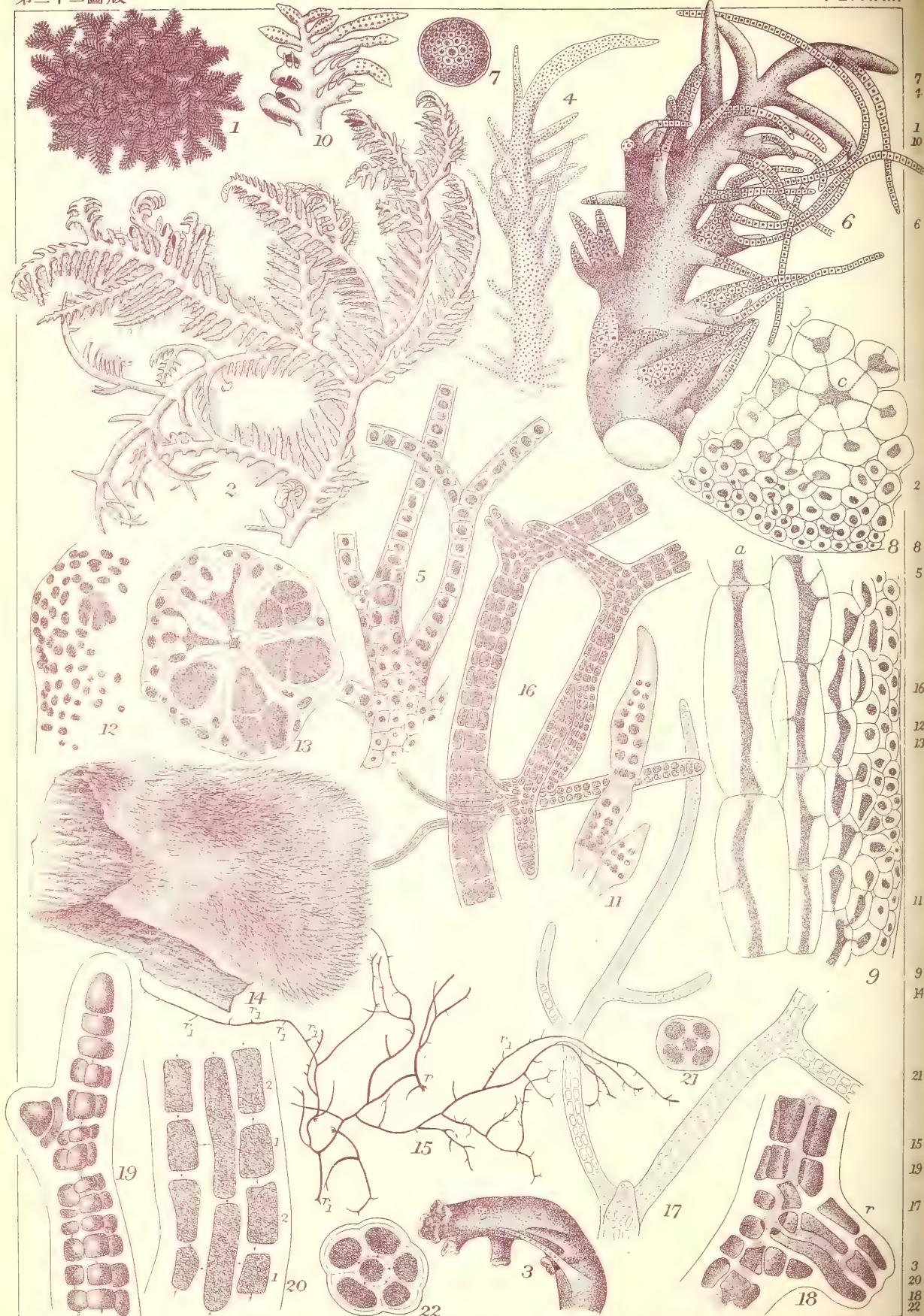
第 XXI 圖版, 8-10 圖. 8: 精子器ヲ有スル小羽枝ノ上部, $\frac{54}{1}$.
—9: 精子器, $\frac{175}{1}$.—10: 胎原ノ種々ナル發育狀態, $\frac{175}{1}$.

Bostrychia tenella (Vahl) J. Ag.

Nom. Jap. *Kokē-modoki*.

PL. XXII, Figs. 1-13.

Bostrychia tenella (Vahl) J. Alg. Sp. Alg. II, p. 869; Id. Anal. Algol. Cont. IV, p. 83; Fkbg., Rhodom., p. 515, Tab. 12, f. 10-13; De Toni Syll. Alg. IV, p. 1162; 岡村, 日本藻類名彙 p. 65.—*Fucus tenellus* Vahl in Nat. Hist. Selsk. Skr. V, 2, p. 45.—*Bostrychia calamistrata* Mont.; Harv. Ner. Austr. p. 68; Id. Ner. Bör. Amer. II, p. 56, t. XIV, c; Kuetz. Sp. Alg. p. 839; Id. Tab. Phyc. XV, t. 19, f. a-c.—*Bostrychia Vieillaradii* Kuetz. Tab. Phyc. XV, p. 10, t. 26, f. a-e.—*Bostrychia sertularina* Mont.; Kuetz. Tab. Phyc. XV, t. 25, f. a-c; J. Ag. Anal. Alg. Cont. IV, p. 82.—*Bostrychia terrestris* Harv.; J. Ag. Anal. Alg. Cont. IV, p. 82.—*Bostrychia tenella* var. *terrestris* J. Ag. Sp. Alg. II, p. 869.



Bostrychia tenella (Vahl) J. Ag. こけもどき Figs. 1-13.
Bostrychia Andoi Okam. n. Sp. たまこけもどき Figs. 14-22.

Plants densely crowded, spreading in wide patches, with all the parts creeping and overlying one another. Fronds are decompound-pinnate with elongated and often somewhat irregularly inserted branches. Indefinite elongated branches are alternately and distichously loaded with more or less definite, shortened ones, some of which here and there grow up into indefinite elongated branches. The definite branches are also alternately and distichously branched with those of the lesser orders, which are either simple or mostly compound. By the successive ramification, the ultimate branches remain filiform and monosiphonous, while the thicker ones are densely corticated. Not seldom, there are also lesser sorts of branches, either monosiphonous or thickly corticated, which are produced from the ventral side of the shorter, definite branches. They are mostly arranged without any definite order, or, in other times, in an interrupted, single or double rows, and thus, the somewhat regular arrangement of the lesser sorts of branches in definite ones is disturbed. All the apices of the longer and shorter branches are incurved toward the ventral side of frond. The dorso-ventral character is well represented in the one-sided arrangement of cortical or monosiphonous branchlets along the outer side of branches arising from shorter, definite branches, as it is shown in some ones on the left side of Fig. 6. Branches are attached to substratum by root-like organs which are transformed from shortened and stunted branches. All the sorts of branches are cylindrical, and densely coated, except ultimate monosiphonous ones, showing 6 pericentral cells in cross-section. In longitudinal section, two pericentral cells correspond to one axial cell, and each pericentral cell is covered by other two cells, every one of which, in turn, by other two, and so on. Thus there is a pretty regular arrangement of cells both in cross and longitudinal sections.

Stichidia are formed from terminal portion of definite and indefinite

branches and are lanceolate in outline. In the cross-section, 6 tetrasporangia are seen in one and the same plane, which are externally protected by a few smaller cortical cells. *Cystocarps* and *antheridia* are unknown to me at present. Colour vinoso-brown with greenish tint. Plants do not adhere to paper in drying.

Hab.: On rocks 5-6 ft. above the surface of sea, where spray may come upon and stretched along the fissures of the rock, through which the subterranean water oozes out; Cape Bō (Prov. Satsuma), Riukiu.

PL. XXII, Figs. 1-13. Fig. 1: *Bostrychia tenella* (Vahl) J. Ag. in nat. size.—Fig. 2: portion of frond bearing stichidia, $\frac{5}{1}$.—Fig. 3: portion of branch with root-like attachments, $\frac{52}{1}$.—Fig. 4-5: portion of branches of the lesser sort, $\frac{52}{1}$, $\frac{220}{1}$, respectively.—Fig. 6: short and more or less definite branch, seen from the under-surface, showing the dorso-ventral arrangement of branches, $\frac{91}{1}$.—Fig. 7: cross-section of branch, slightly magd.—Fig. 8: portion of the cross-section with pericentral cells; c , central axis, $\frac{220}{1}$.—Fig. 9: portion of longitudinal section with the axis, a , $\frac{220}{1}$.—Fig. 10-11: stichidia, magd.—Fig. 12: portion of a stichidium with a tetrasporangium seen from the surface, $\frac{220}{1}$.—Fig. 13: cross-section of a stichidium, $\frac{220}{1}$.

Bostrychia Montagne.

こけもどき属.

RHODOMELACEAE. ふぢまつも科.

體ハ平臥シ, 多クハ匍匐シ, 稀ニ斜上シ或ハ直立ス, 多少扁壓(時ニ甚不明ナルコトアリ)ニシテ, 腹背ノ性質ヲ存シ, 左右兩縁ヨリ互生シ, 羽狀ニ分枝シ, 稀ニ叉狀、稍叉狀ニ分枝ス, 細胞

組織ヨリ成ル。無限成長ヲナスベキ長條ハ其頂端直立シ若クハ多ク腹面ニ屈曲シ或ハ蝸牛殻狀ニ卷曲ス。而シテ兩緣ヨリ二列ニ互生スル枝ヲ出ス；此枝ハ又早晚限アル成長ヲナスベキ枝ヲ互生シ、此枝時ニ甚シク强大ニ伸長シテ無限成長ヲナスベキ枝トナルコトアリ。斯ノ如ク數回互生ニ分枝シテ生ジタル最末位ノ小枝ハ分枝セズ或ハ分枝シ、多クハ單管軸ヨリ成ル(恰モ他ノ植物ノ毛狀枝ノ如ク形成セラル)。體ノ匍匐セル部分ハ短キ太キ吸盤狀根又ハ特ニ此目的ノ爲ニ矮生セル如キ小枝ヲ以テ他物ニ固着ス。中軸ヲ圍繞スル周心管ハ種類ニ依リ概モ一定(多クハ 5 條)スレドモ又或個體ニアリテハ枝ノ強弱ノ度ニ依リ 4-10 條ニ變ズルコトアリ。周心管ハ中軸トハ同長ナラズシテ必ズ横ニ分裂シ、其各細胞ハ又夫ヨリ小ナル細胞ヲ以テ蔽ハレ、斯クシテ規則正シク數層ノ皮部組織ヲナシテ體ノ厚サヲ構成ス；此故ニ體ノ横斷又ハ縱斷面ニ於テ細胞ハ多クハ正シク縱横ニ並列ス。體ノ成長ハ單基的ニシテ頂細胞ハ水平ト斜面トノ分裂面ヲ以テ正シク交互シテ分裂ス。有限成長ノ小枝ハ時ニ其頂端マデ多管軸ヲ顯ハスコトアリ或ハ只其下部ノミニ然ルコトアリ。

生殖器ハ稍幼キ(決シテ最モ幼キモノニアラズ) 有限成長ノ枝ノ上部ニ生ズ。四分胞子囊ハ多少明ニ胞子托狀ヲナセル小枝ニ多數ニ生ジ、其部ノ周心管ト同數ノ輪生ヲナス(即チ 4-6)；而シテ其外部ハ小細胞ヲ以テ稍不充分ニ蔽ハル。精子器ハ少シク膨大セル末枝ノ中央部ノ數節ヨリ變成シ、其部ノ表面ニ瘤狀ノ塊ヲナシテ集リ生ズ。胎原ハ小枝ノ稍太クナリタル部分ノ内ニ單列又ハ三列ヲナシテ無數ニ生ジ、體ノ皮層ヲ以テ蔽ハル。囊果ハ大ナル卵圓形ニシテ一個若クハ二個相接シテ生ジ、多クハ有限的小枝ノ一部ニ於テ折レ曲リタル如キ部分(多クハ頂端ニ近ク)ニ存シテ廣キ基部ヲ有ス。果

皮ハ稍薄シ。成胞絲ハ束狀ニ集リテ開カズ；胞子ハ長クジテ棍棒狀ナリ。

凡ソ二十種アリテ專ラ溫暖ノ海ニ產シ，多クハ河口ノ如キ淡鹹水ノ交ル處ニ產シ，又遙ニ河ノ上流ニアリ。專ラ淡水ニノミ產スルモノ亦少ナカラズ。

屬ノ名ハ *Bostrychos* (小サキ環特ニ毛ノ縮レテクルリト環ノ如ク卷ケルモノ) ニ取レリ，即チ多ク枝端ノ卷曲スルニ依テナルベシ。

Bostrychia tenella (Vahl) J. Ag.

こけもどき 新稱

PL. XXII, 1-13 圖

植物ハ密ニ群集シ，廣ク蔓延シ，各部匍匐シテ相重疊ス。體ハ複羽狀ニシテ長キ枝ヲ有シ，枝ハ往々稍不規則ニ配列ス。無限成長ヲナスベキ長キ枝ハ兩緣ヨリ多少短クナレル枝ヲ互生ス，此枝ハ成長ニ限アルモノナレドモ其處此處ニ伸ビテ長キ枝トナルコトアリ。有限枝ハ又其次位ノ枝ヲ兩緣ヨリ互生ス；此等漸次末位ノ枝ハ或ハ單條ナレドモ多クハ分枝ス；其漸次分枝スルニ隨テ，最末位ノ枝ハ絲狀ニシテ單管ナレドモ，稍太キモノハ密ニ皮層細胞ヲ被ル。又短カキ有限枝ノ腹面ヨリ末位ノ枝ヲ生ズルコトハ稀ナラズシテ，其枝ハ單管ナルコトアリ又厚ク皮層細胞ヲ被ムルコトアリ。此等腹面ヨリ出ル枝ハ一定ノ順序ナキコトアレドモ，亦時ニハ斷續セル一列又ハ二列ヲナスコトアリ；斯クテ小枝ノ稍規則正シキ配列モ，此等腹面ヨリ出ルモノアルガ爲ニ不規則トナル。枝ハ總テ先端ニ於テ體ノ腹面ノ方ニ屈曲ス。體ノ腹背的性

質ハ小枝ガ短カキ有限枝ヨリ生ズル枝ノ外側ニ偏在スルニヨリテ能ク之ヲ見ルコトヲ得; 其小枝ハ單管ナルカ又ハ皮層ヲ被ルコトアリ, 第六圖ノ左側ニ在ル枝ニ就テ之ヲ見ルベシ。枝ハ根ノ如キモノニテ岩ニ付着ス; 其根ノ如キ部分ハ短カキ矮小ナル枝ノ變ジタルモノナリ。枝ハ總テ圓柱狀ニシテ密ニ皮層細胞ヲ被ムル, 但最末ノ單管ナル枝ハ皮層細胞ナシ, 而シテ枝ハ六條ノ周心細胞ヲ存ス。縱斷面ヲ以テ見レバ二個ノ周心細胞ハ一個ノ中軸細胞ニ相當シ, 各周心細胞ハ又他ノ二個細胞ニ依テ蔽ハル; 其各細胞ハ更ニ又他ノ二個細胞ニヨリテ蔽ハル、コト前ノ如シ。斯クテ縱斷並ニ横斷面トモ可ナリ規則正シク細胞ノ配置セルヲ見ルベシ。

四分胞子托ハ無限並ニ有限枝ノ頂部ニ形成セラレ, 輪廓ハ披針狀ナリ; 之ヲ横斷スレバ六個ノ四分胞子囊ヲ同一ノ斷面ニ見ルベク, 其各ハ小サキ皮層細胞ヲ以テ蔽ハル。囊果及精子器ハ予今之ヲ詳ニセズ。色ハ暗褐色ニシテ稍紫紅色ヲ帶ブ。植物ハ乾燥スルトキハ紙ニ付着セズ。

產地: 海面上五六尺ノ高サニ在ル岩石ニ生ジ時々波浪ノシブキヲ受クベキ所ニシテ岩ノ裂罅ヨリ地中ノ水濕ノ浸出スル線ニ沿フテ蔓延ス。薩摩坊崎, 琉球。

分布: 大西洋熱帶部, 印度洋, 大平洋。

第XXII圖版, 1-13圖。1: こけもどきノ自然ノ狀態, 2-2: 四分胞子托ヲ有スル體ノ一部, 3-3: 根ノ如キ枝ヲ有スル枝ノ一部, 4-5: 末位ノ枝ノ一部, 6: 短カクシテ多少有限的成長ヲナス枝ヲ下面ヨリ見タルモノニシテ枝ノ腹背的ニ配置セルヲ示ス, 7: 枝ノ横斷面, 廓大, 8: 周心管ヲ有スル横斷面ノ一部, 9: 縱斷面ノ一部; α , 中軸, 10-11: 四分胞子托, 廓大, 12: 一個ノ四分胞子囊ヲ上ヨリ見タル四分胞子托ノ表面ノ一部, 13: 四分胞子托ノ横斷面, $\frac{220}{1}$ 。

Bostrychia Andoi Okam. n. sp.

Nom. Jap.: *Tani-kokémodoki*.

PL. XXII, Figs. 14-22.

Bostrychia Andoi 岡村, 日本藻類名彙 p. 232.

Fronds filiform, densely tufted rising from prostrate creeping filaments with vaguely branched segments which are entangled together by means of root-fibres emitted from the places where branches come in contact with one another. Plant attains a height of 10-20 mm. and its thickness measures 80-120 μ in thicker portion, while 60-72 μ for the most parts and 40 μ at the apical portions. Pericentral cells which are thoroughly ecorticated vary from 4 to 5 according to the thickness of branches and two pericentral cells correspond to one central cell. Young ramuli and apical portions of thicker branches remain monosiphonous. Colour dark vinoso-brown. Substance soft and membranous and the plant does not adhere to paper in drying.

Hab.: On stones in a torrent in a hilly district 5 miles from the sea; Riukiu.

This distinctly new fresh-water species of *Bostrychia* was collected by Mr. K. Ando, 4 Oct. 1901, in a torrent in a hilly district 5 miles from its mouth at Daikumata in Kunchan District in Riukiu. He wrote to me as follows:—"this plant grows on stones in a quiet stream below a cascade and it does not grow either on too small stones or on too angular ones. It abounds in shady places. Although it is found in still water, the tuft of frond does not stand erect but bends with stream."

PL. XXII, Fig. 14-22. Fig. 14: *Bostrychia Andoi* in nat. state and size.—Fig. 15: one of fronds detached; r , primary root; r_1, r_2 , secondary roots; $\frac{5}{1}$.—Fig. 16: portions of fronds showing the attachments of branches by root-fibres, $\frac{9}{1}$.—Fig. 17: piece of a filament with a secondary root-like branch, r , $\frac{5}{1}$.—Fig. 18: root, r , emitted from a branch, $\frac{39}{1}$.—Fig. 19: terminal portion of a filament showing the structure of frond, $\frac{39}{1}$.—Fig. 20: longitudinal section of a filament; z, z showing the order of the formation of pericentral cells, $\frac{22}{1}$.—Fig. 21-22: cross-sections of different parts of branches; Fig. 21 measures 56 μ in diam., $\frac{22}{1}$.

Bostrychia Andoi Okam.

たにこけもどき。岡村稱。

第 XXII 圖版, 14-22 圖。

體ハ絲狀ニシテ密ニ叢生シ、匍匐セル部分ヨリ直立シ、一定ノ順序ナウ頗ル不規則ニ枝ヲ分ツ; 枝ハ其相接觸シタル所ヨリ根ヲ生ジテ以テ錯綜ス; 高サ 10-20 mm. ニ達シ、太サハ太キ部分ニテ 80-120 μ ヲ有シ、大部分ハ 60-72 μ ニシテ、頂部ノ若キ所ハ 40 μ ナリ。周心細胞ハ全ク皮層細胞ヲ被ムルコトナク、部分ニ應ジテ四條ヨリ五條ヲ有シ、一個ノ中軸細胞ニ對スルニ其二個ヲ以テス。幼キ小枝及ビ太キ枝ノ上部ハ單管ナリ。色ハ黒味アル褐紫色ナリ。質ハ軟カキ膜質ニシテ乾燥スルトキハ紙ニ付着セズ。

產地: 海岸ヨリ二里余ノ山中ノ溪流ノ石上ニ付着ス; 琉球國頭郡デイクマタ(明治三十四年十月四日安藤喜一郎氏採)。

本種ハ淡水ニ產スルこけもどき屬ノ明ナル一新種ナリ; 由

來此屬ノモノハ海水ニ產スル種ノミニアラズシテ, 或ハ淡鹹兩水ノ混ズル所ニアルモノアリ, 又全ク淡水ニ產スルモアリ, 例ヘバ *Bostrychia Moritziana* ハ Guayana 山中ノ小河ニ生ジ, Beccari 氏ハ Borneo ノ内地ノ急流ニ其一種ヲ發見シ, Goebel 氏ハ「ニウジー・ランド」ニ於テ海面上 500 m. ノ所ニ又他ノ一一種ヲ採リタル等其類例渺シトセズ. 今本種モ亦此類ノ一ニシテ實ニ明治三十四年十月四日琉球國頭郡大宜味間切字ディクマタノ山路海岸ヲ去ル二里余ノ所ニ於テ安藤喜一郎氏ノ採ル所ナリ. 氏ノ予ニ寄セタル書ニ依ルニ此植物ハ瀧ノ如クナル所ノ下ノ靜カナル場所ニアリテ石上ニ叢生シ餘リ小ナル石ニハ付着スルコトナク又餘リニ角多キ石ニモ付クコトナク, 好ンデ蔭所ニ多シ而シテ水ノ靜ナル所ニ產スト雖モ體ハ直立スルコトナク水ノ流レニ隨ヒテ屈曲スト. 其餘リニ小ナル石ニ付着セザルハ思フニ水勢ノ增ストキニ當リ流シ去ラル、恐アル爲ナルベク, 其餘リニ角多キ石ニ付着セズト云フハ或ハ其新ニ母巖ヨリ落チタルニ依ルニハアラザルカ. 穦ニ角本種ハ此種ノ淡水藻類ニ一新種ヲ加ヘタルモノト云フベシ.

第 XXII 圖版, 14-22 圖. 14: たにこけもどきノ自然ノ狀態及其自然大. 15: 體ノ一ヲ游離シタルモノ; r, 最初ノ付着根; r₁, r₂, 第二ニ生ジタル根; 16: 枝ノ互ニ根ヲ以テ付着スル狀, 17: 體ノ一部ニシテ第二ニ生ジタル根, r, ヲ示ス, 18: 枝ヨリ根, r, ヲ生スル狀, 19: 枝ノ頂端ニシテ體ノ構造ヲ示ス, 20: 體ノ縱斷面; 1, 2, ハ周心細胞ノ形成スル順序, 21-22: 枝ノ種々ナル部分ノ横斷面; 21 圖ハ直徑 56 μ アリ, 22 圖.



Pachydictyon coriaceum (Holm.) Okam. きなだぐさ
Figs. 1-6.



Gymnosorus collaris (Ag.) J. Ag. はいあふき Figs. 1-5.
 Pachydictyon coriaceum (Holm) Okam. さなだぐさ Figs. 6-12.
 Chlidoniate repens Okam. ふたへあふき Figs. 13-18.
 © Okam. del.

Pachydictyon coriaceum (Holmes) Okam.

Nom. Jap.: *Sanada-gusa*.

PL. XXIII, Figs. 1-6; PL. XXIV, Figs. 6-12.

Pachydictyon coriaceum (Holmes) Okam. Contrib. Knowl. Mar. Alg. Jap. III, p. 13 (Bot. Mag. Tokyo 植物學雜誌, Vol. XIII, 1899, No. 145, p. 39) pl. I, fig. 31-34; 岡村 日本藻類名鑑 p. 112.—*Glossophora coriacea* Holmes New Mar. Alg. Jap. no. 5 in Journ. Linn. Soc. Bot. Vol. XXX, p. 251.

“Fronds 30-40 cm. high, dichotomo-decompound, shortly stipitate and stuppe at base. At a height of some 3-4 cm. above the base, the frond begins to divide repeatedly in dichotomous manner, the ramification being more or less fastigiato-flabellate. Segments are linear-cuneate, 7-15 mm. broad, with round axils and entire margin; they are usually separated by remote forks, but sometimes they approach much nearer to each other. Terminal segments are ligulate and end in either a rounded or bilobed apex, the lobes being mostly parallel or a little patent. Many proliferous segments are produced mostly from injured ends of older segments.

“In the older portion, the frond evidently consists of three layers of cells. The inner layer consists of large cells, disposed in a single layer extending between both margins; here and there some of them are divided into two by a partition parallel to the surface. The wall of cells is very much thicker in older than in younger portions. The epidermis consists of a layer of cubical or low rectangular cells, sub-equal to the breadth or twice as long as broad. They are arranged in a longitudinal row, as seen in surface view. Below the epidermis there is one or more layers of small cells, which are slightly larger than the epidermal, but much smaller than the cells of the inner layer

In the younger portion of fronds, the intermediate cells are often here-and there interrupted; but in older portions, at least one layer of them is always present and even 4 or 5 layers in the marginal portion. The cell-contents are somewhat poorer in these cells than those in epidermis. Paranemata are always present.

"Tetrasporangia are spherical, only one or two being found scattered at the beginning, but afterwards more and more collected into irregularly oblong or linear sori, which are 2-4 mm. long or often much longer. The sori are scattered over both surfaces, leaving sterile the narrow marginal linear and oasis-like patches of variable breadth. Tetraspores appear under the microscope roundish or polygonal from mutual pressure. Oogonia also collected into roundish, dot-like sori, in which the spores radiate above the surfaces of the frond. They are very densely scattered over the frond, almost leaving no sterile marginal line. Both kinds of sori are elevated above the surface of the frond. The sori of tetrasporangia are much larger than those of oogonia."

"Colour dark-yellowish-brown when recent, becoming very opaque in older portions. On drying the plant becomes almost blackish, the brown colour being preserved only in younger portions. Substance thick, coriaceous, thin and membranaceous only in the upper portion."

—Okam. l.c.

Hab.: On rocks between tide-marks; Provs. Tosa, Sagami, Bōshyu, Kadzusa, Isl. Niijima.

PL. XXIII, Figs. 1-6. Fig. 1: *Pachydictyon coriaceum* (Holm.) Okam. bearing sori of tetrasporangia, $\frac{1}{1}$.—Fig. 2: growing apex of frond, $\frac{140}{1}$.—Fig. 3: terminal portion of frond, bearing tetrasporic sori, $\frac{1}{1}$.—Fig. 4: tetrasporangia, $\frac{134}{1}$.—Fig. 5: terminal portion of frond bearing sori of oospores, $\frac{1}{1}$.—Fig. 6: sori of oospores, $\frac{54}{1}$.

PL. XXIV, Fig. 6-12. Fig. 6 : surface-view of a tetrasporic sorus,
 $\frac{5}{1}^4$.—Fig. 7 : cross-section of marginal portion of frond, $\frac{5}{1}^4$.—Fig. 8 :
cross-section of thicker portion of frond, $\frac{9}{1}^1$.—Fig. 9 : portion of the
cross-section of frond showing tetrasporangia and paranemata, $\frac{22}{1}^0$.—
Fig. 10 : sori of oospores, $\frac{11}{1}^5$.—Fig. 11 : apices of branches, $\frac{5}{1}$.—
Fig. 12 : longitudinal section of frond, showing the cortical layer, $\frac{24}{1}^0$.

Pachydictyon J. Ag. 1894.

さなだぐさ属

DICTYOTEAE (DICTYOTACEAE).

あみぢぐさ科 あみぢぐさ亞科

體ハ扁平ニシテ中肋ナク、頂細胞ノ二分裂ニヨリテ屢々
狀ニ分岐シ、枝ハ帶狀ニシテ互ニ扇狀ニ開キ各直出ス、又往々
複羽狀ヲナスコトアリ。構造ハ後稍三層ヨリ成ル；即チ内層
ハ大ナル四角形ノ細胞ニシテ兩緣邊ノ間ニ一層ニ並ビ、以テ
髓層ヲナス；中層ハ小サキ圓形-多角形ノ細胞ニシテ後數層
トナリ、外層ハ一層ノ細胞ニシテ體ノ表面ニ縦ニ列ビ頂細
胞ノ方ニ集中ス。胞子(四分胞子、卵細胞、精子細胞)ハ球狀ノ
細胞ニシテ體ノ表面ニ隆起シ、概子數個相接近ス。

四種アリ、内三種ハ皆「ニウホルランド」ノ產ナリ；上ノ記載
中胞子ノ性質ハ從來充分明ナラザルモノ多シト見ヘ稍明瞭
ヲ缺クト雖モ、本邦ノ種類ニ於テハ四分胞子及卵細胞トモ皆
球狀若クハ精圓形ノ群ヲナス、然レドモ此處ニハ暫ク典籍ノ
記ス所ニ依リタリ。屬ノ名ハ Pachys (厚キ) ト dictyon (網) トヨリ
成ル、思フニ Dictyota (あみぢぐさ属) ノ厚キモノト云ヘル意ナ
ルベシ。實ニ外形頗ルあみぢぐさニ類スト雖モ皮部ノ構造

之ト異ニシテ皮層細胞ト内層トノ間ニ少ナクトモ一二層ノ中層細胞アリ, あみぢぐさハ唯皮層ト内層トノ二層ノミニテ成ルヲ以テ異ナリトス.

Pachydictyon coriaceum (Holmes) Okam.

さなだぐさ. 岡村稱.

第 XXIII 圖版, 1-6 圖; 第 XXIV 圖版, 6-12 圖.

體ハ 30-40 cm. 高ク, 複叉狀ニ分岐シ, 下部少距離ノ間莖狀ヲナシ褐色ノ毛葺ヲ存ス. 莖部ヨリ約 3-4 cm. ノ高サニ於テ體ハ屢々分叉シ, 枝ハ帶狀ニシテ多少扇狀ニ開キ直出ス. 各部ハ線狀一楔形ニシテ 7-15 mm. 廣ク, 脂圓クシテ全緣ナリ, 而シテ又枝ハ通常相距レドモ, 時ニハ殆ド接近スルモノアリ. 枝ノ頂端ハ舌狀ニシテ圓形又ハ二裂シ, 裂片ハ概子並行シ或ハ稍廣開ス. 枝ノ所々害ヲ蒙リタル所ヨリ往々多數ノ副枝ヲ叢生ス.

體ノ老成セル部分ニアリテハ明ニ三層ノ細胞ヨリ成リ, 内層ハ大ナル一層ノ細胞ヨリ成ル; 此細胞ハ所々ニ體ノ表面ニ並行セル隔膜ヲ生ジテ二個ニ分裂スルコトアリ. 表皮ハ一層ニシテ其下ニ少ナクトモ一層ノ中層細胞アリ, 然レドモ幼キ部分ニテハ往々之ヲ缺ク, 其殊ニ明ナルハ緣邊部ニシテ此處ニハ概子四五層ノ細胞アリ. 毛狀體ハ常ニ之ヲ存ス.

四分胞子ハ球狀ニシテ始メ只一二個散在スレドモ後漸次集合シテ不規則ナル長橢圓形又ハ線狀ノ群ヲナシ; 其長サ 2-4 mm. アリ或ハ尙ホ長シ. 群バ體ノ兩面ニ散在シ緣邊ニ沿ヒテ細キ線狀部ヲ殘シ, 群ト群トノ間ハ恰モ彼ノ砂漠ノ oasis ノ如キ狀ヲ呈ス. 四分胞子囊ハ互ノ壓迫ニヨリテ多角形ヲナシ或ハ球狀ナリ. 卵細胞ハ半球狀ノ點狀群ヲナシ, 胞子ハ

體ノ表面ニ放射狀ニ集ル, 而シテ密ニ體ノ全面ニ散布シテ緣邊ニ線狀部ヲモ殘スコトナシ。兩者トモ群ハ體ノ表面ニ隆起シ, 四分胞子群ハ卵細胞群ヨリモ更ニ大ナリ。

色ハ新鮮ノモノハ暗黃褐色ニシテ老成部ハ極メテ不透明ナリ, 而シテ乾燥スルトキハ殆ド黑色トナリ, 幼部ノミ黃褐色ヲ留ム。質厚ク革質ニシテ, 頂部ノミ薄ク膜狀ナリ。

產地: 潮線間ノ岩石ニ生ズ; 土佐, 相模 安房, 上總, 新島。

胞子群: 四-六月。

第XXIII圖版, 1-6圖。1: 四分胞子ヲ有スル さなだぐさ, 1-2: 成長點細胞, $\frac{140}{1}$ 。-3: 四分胞子群ヲ有スル枝ノ頂端, 1-4: 四分胞子囊, $\frac{134}{1}$ 。-5: 卵細胞群ヲ有スル枝ノ頂端, 1-6: 卵細胞群, $\frac{54}{1}$ 。

第XXIV圖版, 6-12圖。6: 四分胞子群ノ表面, $\frac{54}{1}$ 。-7: 體ノ緣邊部ノ横斷面, $\frac{54}{1}$ 。-8: 體ノ厚キ部分ノ横斷面, $\frac{91}{1}$ 。-9: 體ノ横斷面ノ一部ニシテ四分胞子囊ト毛狀體トヲ示ス, $\frac{220}{1}$ 。-10: 卵細胞群, $\frac{115}{1}$ 。-11: 枝ノ頂端; 表皮細胞ノ成長點ノ方ニ集中スル狀, $\frac{5}{1}$ 。-12: 體ヲ縱斷シテ皮部ノ中層組織ヲ示ス, $\frac{220}{1}$ 。

Gymnosorus collaris (Ag.) J. Ag.

Nom. Jap.: *Hai-ōgi*.

PL. XXIV, Fig. 1-5.

Gymnosorus collaris (Ag.) J. Ag. Anal. Algolog. Cont. I, p. 11; De Toni Syll. Alg. III, p. 228.—*Zonaria collaris* Ag. Syst. p. 264; Kuetz. Tab. Phyc. IX, t. 76, f. II.—*Gymnosorus nigrescens* (Sond.) J. Ag.; 岡村, 日本藻類名彙 p. 107.

Fronds probably decumbent, flabellato-reniform, 4-5 cm. in radius, entire or slightly lobed, estupose at base, coriaceous. Sori minute dot-like on upper surface, roundish. Colour dark yellowish-brown when dried.

Hab.: On rocks in the depth of 7 fath. at Riukiu (col. Kuroiwa); Ogasawarajima.

PL. XXIV, Fig. 1-5. Fig. 1: *Gymnosorus collaris* (Ag.) J. Ag. drawn from a dried specimen, $\frac{1}{2}$.—Fig. 2: surface-view of fertile frond; α , α , rows of sterile cells; β , β , young sporangia (?), $\frac{390}{1}$.—Fig. 3: surface-view of sori, $\frac{12}{1}$.—Fig. 4: cross-section of frond through the sorus, $\frac{22}{1}$.—Fig. 5: portion of the cross-section of frond with young sporangia (?), $\frac{220}{1}$.

Gymnosorus J. Agardh 1894.

はいあふぎ属

ZONARIEAE (DICTYOTACEAE).

しまあふぎ亞科 (あみぢぐさ科).

體ハ扁平ニシテ下部概乎匍匐シ, 上部ハ斜上シ, 多少放射狀ニ裂ケ, 頂部ノ裂片ハ之ヲ擴グレバ互ニ扇狀ヲナシテ列シ, 半圓形又ハ腎臟形ニ成長シ, 體ノ表面ニ重圓狀線ヲ劃ス。體ハ二層ノ組織ヨリ成ル; 内層ハ數層ノ多角形細胞ヨリ成リ, 規則正シク相重疊シテ恰モ同形ノ煉瓦ヲ積重ニタル如ク真直ニ列シ, 外層ハ一層ノ皮層細胞ヨリ成ル; 皮層細胞ハ之ヲ表面ヨリ見レバ二個宛相接シテ一縦列ヲ作リ放射狀線ニ沿ヒテ走ル, 故ニ内部細胞ノ一一ニ對シテ二個ノ皮層細胞ヲ存スルナリ;

體ノ成長ハ緣邊成長ニシテ成長點ハ緣邊ニ沿ヒテ放射狀ニ列ス。子囊群ハ體ノ表面(上面)上ニ隆起シ、圓形又ハ長橢圓形ノ斑ヲナシ、稍重圈狀ニ列シ、被膜(即チ表皮細胞ノCuticle層)ヲ被ラズ; 子囊ハ表皮細胞ヨリ變成シ倒卵形ニシテ(稍八個ノ)胞子ヲ生ズ; 「バラフ_ョシス」ハ之ヲ存セズ。

三種程アリテ概子暖海ニ產シ、印度洋、ニウフホルランド、太平洋諸島等其主產地ナリ。元ト *Zonaria* (しまあふぎ屬), *Stylopodium* (ぢかみぐさ屬), *Spathoglossum* (こもんぐさ屬) 等ト混同セラレタレドモ、1894年 J. Agardh 氏ニ依リテ別屬トセラレタリ。元來あみぢぐさ科ノ植物ハ重圈狀成長線ノ有無ニヨリテ *Zonarieae* (之ヲ有スルモノ) ト *Spathoglosseae* (之ヲ欠クモノ) トニ別チ、*Zonarieae* ヲ又毛即「バラ子マタ」ノ有無ニヨリテ、*Zonarieae* (之ナキモノ) ト *Padineae* (之アルモノ) トニ分チタリ; 而シテ本屬ト *Zonaria* (しまあふぎ屬 17 頁、第 IV 圖版、I-I0 圖) トハ頗ル類似シ兩者共表皮ノ一縱列ハ二列ノ細胞ヨリ成リテ内部細胞ノ一個ニ相當スレドモ、本屬ノ者ニハ子囊群ニ被膜 (inducium) ナク且「バラフ_ョシス ナキヲ以テしまあふぎ屬ト區別ス——屬名ハ *gymnos* (裸) ト *soros* (群集) トヨリ成ル、即チ子囊群ノ被膜ナキ意

Gymnosorus collaris (Ag.) J. Ag.

はいあふぎ 岡村稱

第 XXIV 圖版, I-5 圖

體ハ大半匍匐シ、扇狀乃至稍腎臟形ニシテ半徑 4-5 cm. ヽ有シ、全緣若クハ淺ク裂ケ、下部ニ褐色ノ毛葺ナシ; 體質厚ク革質ナリ。子囊群ハ體ノ表面ニ圓キ小サキ點狀斑ヲナス。色ハ乾燥スルトキハ暗黃褐色ナリ。

产地：七尋ノ深サノ岩石ニ生ズ、琉球、(黒岩氏)；小笠原島、(松本氏)。

分布：西印度。

第XXIV圖版、1-5圖。1：乾燥標品ヨリ畫キタルはいあふぎ、
1-2：實アル體ノ表面；*a, a*、實ナキ部分ノ細胞列；*p, p*、幼キ子囊(?)、 $\frac{390}{1}$ —3：子囊群ヲ上ヨリ見タルモノ、 $\frac{12}{1}$ —4：子囊群ヲ通シテ切リタル體ノ横斷面、 $\frac{22}{1}$ —5：幼キ子囊(?)ヲ有スル體ノ横断面ノ一部、 $\frac{220}{1}$ 。

***Chlanidote repens* Okam. (nom. emend.)**

Nom. Jap.: *Futaê-ôgi*.

PL. XXIV, Fig. 13-18.

Chlanidote decumbens Okam. Contr. Knowl. Mar. Alg. Jap. III, p. 12, Pl., I, Fig. 23-25 (Bot. Mag. Tokyo, 植物學雜誌, Vol. XIII (1899) No. 145, p. 38).—*Chlanidote repens* 岡村, 日本藻類名彙 p. 108.

“Fronds repent or decumbent, at first simple and reinform, afterwards and more usually torn up longitudinally into cuneate segments, which are again and again lobed in the similar manner and become flabelliform. The lobes afterwards assume the shape like the original fronds, being slightly imbricated. Fronds attain the length of 3-4 cm. in specimens now before us, and have the breadth nearly as much. The lower portion of frond thickens when old, and in some specimens it assumes an appearance somewhat like a stem. The upper-surface of frond is smooth, but the under-surface is covered with buffy-coloured

jointed hairs. In some specimens, they are also emitted near the upper portion in a somewhat concentric manner. The frond is composed of two layers of cells which are arranged in a single longitudinal row of an equal breadth in surface view." In some cross-sections we often meet with cells of the both sides divided into two by a partition parallel to the surface (Fig. 15). "Cells of the under-surface are a little larger than those of the upper. Sori are found not fully formed in the specimens now before me; but some of cells beneath the line of innovation are divided into 4-6 or 8 in double rows, taking an appearance very much resembling to the antheridia illustrated in J. Ag. Anal. Alg. Cont. I, tab. I, Fig. 3-5. Colour yellowish-brown when recent, becoming blackish in drying. Substance thin and membranaceous and the plant does not adhere to paper in drying."—*Okam. l.c.*

Hab.: On shells of *Haliotis gigantia* from the depth of 20 fathoms at Bōshyū; Enoshima; Prov. Hiuga; Prov. Tosa.

PL. XXIV, Fig. 13-18. Fig. 13-14: *Chlidote repens* Okam. in nat. size; the right-hand frond in Fig. 13 and the left hand one in Fig. 14 showing the upper surface; every remaing half, the lower.—Fig. 15: cross-section of frond, $\frac{175}{1}$.—Fig. 16: surface view of frond showing the antheridia-like cells beneath the line of innovation, $\frac{240}{1}$.—Fig. 17: surface-view of frond showing marginal growing-cells, $\frac{175}{1}$.—Fig. 18: surface view of frond showing doubted antheridia-like cells, $\frac{240}{1}$.

Chlanidote J. Agardh 1894.

ふたへあふぎ屬.

ZONARIEAE (DICTYOTACEAE.)

しまあふぎ亞科 (あみぢぐさ科).

體ハ數多分裂シ, 各裂片ノ頂部ハ扁平ニシテ扇狀ニ開張シ, 下部稍莖狀ヲナシ, 側部ノ齒狀裂片ハ尖銳ニシテ往々一個ノ成長點細胞ニ終ルコトアリ. 體ハ只二層ノ細胞ヨリ成リ, 互ニ密着シテ中層ノ組織ナク, 上下ノ細胞相面シテ重ナレリ; 之ヲ表面ヨリ見ルニ各細胞ハ長方形ニシテ縱ニ一列ヲナシテ放射狀ニ列シ, 各列同一ノ距離ニ立ツ. 實ノ細胞ハ緣邊ハ上ニ出デ, 個々散在シ, 倒卵形一球狀ナリ. 精子細胞ハ實ノ細胞ヲ有スル體ト同一ノ體上ニ生ジ, 長橢圓形一線狀ノ群ヲナシテ表面上ニ隆起シ, 放射狀線ニ沿ヒテ列シ, 始メハ各細胞中ニ二列ノ精子ヲ有スレドモ後ニハ四列トナル.

今此處ニ記セル本邦所產ノ *Chlanidote repens* Okam. ハ果シテ *Chlanidote* 屬ノモノナルヤ否ヤ幾分疑ナキ能ハザルヲ以テ上ニ述ベタル屬ノ性質ノ記載ハ此屬ノ創立者タル J. Agardh 氏ニ依レリ. 氏ハ此屬ノ唯一ノ種ナル *Chlandote microphylla* ヲ以テ此屬ヲ設ケタル故, 此處ニ示シタル屬ノ性質ハ本邦所產ノモノト符合セザル節多シ. 該植物ハ「ニウホルランド」ニ產ス.

本屬ハ頗ル *Zonaria* (しまあふぎ屬)ニ類シ, 従前ハ之ト混ゼラレタレドモ *Zonaria* ハ數層ノ細胞ニテ體ヲ構成スルヲ以テ本屬ト區別セラレタリ. 屬名ハ *Chlanidotos* (衣服ヲ着ル) ヨリ成ル, 其意明ナラズ.

Chlanidote repens Okam. (nom. emend.)

ふたへあふぎ 岡村稱.

PL. XXIV 圖版. 13-18 圖.

體ハ匍匐シ、始メハ單ニシテ扇狀乃至腎臟形ナレドモ、後往々放射狀ニ裂ケテ楔形ノ裂片トナリ、更ニ又同様ニ分裂スレドモ、一々擴グレバ扇狀ヲナシ、緣邊ヲ以テ互ニ相重疊ス; 長サモ幅モ略ボ 3-4 cm. ナリ。體ノ下部ハ老成スルトキハ厚クナリ、時ニハ稍莖ノ如キ觀ヲナスモノアリ。體ノ表面ハ平坦ナレドモ裏面ハ黃褐色ノ毛葺ヲ以テ蔽ハル; 此毛ハ關節ヲ以テ成リ、體ノ上部ニ於ケルヨリモ下部ニ多ク、體ノ上部ニ近ク往々稍重圈狀ヲナシテ生ズルコトアリ。體ハ二層ノ細胞ヨリ成リ各同一ノ幅ニテ縱ニ列ス; 之ヲ横斷スルニ往々上下兩層ノ細胞中、體ノ表面ニ並行シテ横ニ二分スルモノアリ、而シテ下層ノ細胞ハ上層ノモノヨリ稍大ナリトス。子囊群(?)ハ予ノ標品ニテハ充分ニ形成セラレタルモノト思ハレズ; 然レドモ重圈狀線即チ成長區域ヲ示ス線下ニ位スル數個ノ細胞ハ 4-6 乃至 8 個ニ分レテ各二列ヲナセル狀恰モ J. Agardh 氏ガ Anal. Algol. Cont. I, 第 I 圖版, 3-5 圖ニ示シタル精子細胞ニ類スルモノアリ。色ハ新鮮ナルトキハ黃褐色ナレドモ、乾燥スルトキハ黑色トナル。質薄ク膜質ニシテ紙ニ付着セズ。

產地: 房州ニテ 20 尋ノ深處ヨリ獲タルあわび殻上ニ在リ; 相州江ノ島; 日向; 土佐。

備考: 本種ハ上ニモ云ヘル如ク果シテ此屬ニ入ルベキモノナルヤ否ヤ疑ナキ能ハザレドモ、體ノ構造二層ノ細胞ヨリ成レルヲ以テ暫ク此ニ配ス。然レドモ精子細胞ト稱セラレタル

モノ、性質極メテ不明ナルヲ以テ他日ノ研究ニ俟ツ所多シ。

Chlanidote repens ノ種名ハ元ト予ガ *Ch. decumbens* トシタルモノヲ改メタルナリ。

第XXIV圖版, 13-18圖. 13-14: ふたへあふぎノ自然ノ状態; 13圖ノ右半ト14圖ノ左半トハ體ノ表面ヲ示シ, 其他ノ半分ハ各裏面ヲ示ス, 15.—16: 體ノ横断面, $\frac{175}{1}$.—17: 成長線部ノ表面ニシテ精子細胞ノ如キモノアル部ヲ示ス, $\frac{240}{1}$.—18: 成長縁ヲ示セル體ノ表面, $\frac{175}{1}$.—18: 精子細胞ナラザルカノ疑アル細胞ヲ示セル體ノ表面, $\frac{240}{1}$.

Stylopodium lobatum Kuetz.

Nom. Jap.: *Dzigami-gusa*.

PL. XXV, Fig. 1-8.

Stylopodium lobatum Kuetz. Tab. Phyc. IX, p. 25, t. 63, f. 1; J. Ag. Anal. Alg. Cont. I, p. 20; De Toni Syll. Alg. III, p. 239; 岡村, 日本藻類名彙 p. 108.—*Stylopodium fuliginosum* Kuetz. Phyc. Gener. p. 341 id. Sp. Alg. p. 563; Id. Tab. Phyc. IX, t. 62, f. 1.—*Spathoglossum multipartitum* Kuetz. Sp. Alg. p. 560; Id. Tab. Phyc. IX, t. 50.—*Spathoglossum versicolor* Kuetz. Tab. Phyc. IX, t. 49, f. 1.—*Zonaria lobata* Ag.; J. Ag. Sp. Alg. I, p. 109; Id. Till Algern. Syst. II, p. 46; Harv. Ner. Bor. Amer. t. VII, C.

Hab : On rocks and stones in deep waters; Riukiu (col. Kuro-iwa), Cape Bō (Prov. Satsuma); Ushibuka in Amakusa Isl.; Cape Nomo (14 fath.); Nagasaki. Fruits in summar.



PL. XXV, Fig. 1-8. Fig. 1: *Stylopodium lobatum* Kuetz.; *a*, from Cape Nomo; *b*, from Riukiu; *c*, fructified frond from Cape Bō, $\frac{1}{1}$.—Fig. 2: surface view of growing marginal portion, $\frac{220}{1}$.—Fig. 3: cross-section of the younger portion of frond, $\frac{175}{1}$.—Fig. 4: paranemata growing along the line of innovation, seen from above; *s*, *s*, surface of frond; *a*, cuticular membrane pushed up by paranemata, $\frac{220}{1}$.—Fig. 5: surface-view of frond, showing the line of innovation, *l*, after the decay of paranemata, $\frac{220}{1}$.—Fig. 6: portion of a sorus, $\frac{54}{1}$.—Fig. 7: young sporangium, $\frac{220}{1}$.—Fig. 8: same a little advanced, $\frac{220}{1}$.

Stylopodium Kuetzing 1843.

ぢかみぐさ属.

PADINEAE (DICTYOTACEAE).

うみうちは亞科(あみぢぐさ科).

體ハ初メ傾臥スルモノ、如ク緣邊斜上シ後直立ス、扁平扇狀ニシテ稍掌狀ニ分裂シ、或ハ屢々裂ケテ細カキ裂片トナリ重圈狀線ヲ呈ス; 下部ニ黃褐色ノ毛葺アリ。體ハ二層ヨリ成リ内層ノ細胞ハ表皮層即チ外層ノモノヨリ遙ニ大ニシテ多角形ヲナシ、概チ二層ヨリ成ル(所々二層以上ノ所アリ)、而シテ上下ノモノ(横斷面ニテ略ボ正シク相重ナルヲ常トスレドモ或ハ不規則ナル所ナキニアラズ); 表皮ハ一層ニシテ細胞ハ小ナル長方形ヲナシ、内部ノ一個細胞ニ對スルニ3-4乃至以上ノモノヲ以テス。子囊群ハ重圈狀線ニ沿ヒテ生ジ、長クシテ關節セル「パラフ_#シス」(又ハ「パラチマタ」)ヲ有シ、倒卵形ノ胞子ヲ藏ス。

一屬一種ニシテ專ラ暖海ニ產ス; 下ニ記スルモノ即チ是ナリ。本屬ハ從來 Zonaria (しまあふぎ屬), Spathoglossum (こもんぐさ屬) 等ト混ゼラレタレドモ, Zonaria ハ「バラ子マタ」(毛狀體)ナキヲ以テ之ト異ナリ, Spathoglossum ハ重圈狀線ナキヲ以テ異ナリトス。屬ノ名ハ Stypos (毛葺ヲ有スル) ト Podus (足) トヨリ成ル, 即チ體ノ下部ニ毛葺アルニヨルナリ。

Stytopodium lobatum Kuetz.

ちがみぐさ 岡村稱

第XXV圖版, 1-8圖.

體ハ直立シ, 下部毛葺ヲ存シ, 老成セルモノハ厚キ膜狀ニシテ下部稍莖ノ如キ觀ヲ呈ス, 而シテ稍掌狀ニ分レ或ハ放射狀ニ分裂シ, 裂片長キ楔形ニシテ互ニ相重リ, 各裂片ヲ擴ゲタル形ハ扇狀ナリ, 重圈狀線アリ; 高サ 20-25 cm. ニ達シ, 小ナルハ 4-5 cm. ナルアリ。子囊群ハ重圈狀線ノ間ニ幅濶キ斑狀ヲ作り, 體ノ兩面ニアレドモ, 或ハ全ク裏面ニノミアルモノアリ。毛狀體(バラ子マタ)ハ幼キ部分ノ重圈狀線ニ沿ヒテ生ズ。體質ハ膜質ニシテ紙ニ付着セズ。色ハ綠褐色又ハ黃褐色ナリ。

產地: 十四尋ノ深處ナル底網ニカヽレリ野母付近字高濱)
琉球(黑岩氏), 坊岬(薩摩), 牛深(天草), 野母, 長崎灣口。

子囊群: 夏季。

分布: 喜望峯, カナリー諸島, テネリフ, ブラジル, ブエルトリコ, グアデループ, ガラパゴス島, 日本。

第XXV圖版. 1: ちがみぐさ; a, 野母產; b, 琉球產; c, 坊產,

實ヲ有スルモノ; 1.—2: 成長縁ヲ示セル體ノ表面, $\frac{220}{1}$.—3: 體ノ幼キ部分ノ横断面, $\frac{175}{1}$.—4: 重圈状線ニ沿ヒテ生ズル毛狀體ヲ上ヨリ見タルモノ; s, s, 體ノ表面; a, 表皮細胞ノキューチクル層ノ剥脱シタルモノ(毛ガ表皮細胞ヨリ生ジタル爲メ押上グラレテ) $\frac{220}{1}$.—5: 重圈状線ニ生ジタル毛狀體ノ落チタル痕ヲ示セル體ノ表面, $\frac{220}{1}$.—6: 子囊群ノ一部, $\frac{54}{1}$.—7: 幼キ子囊, $\frac{220}{1}$.—8: 同上ノ稍進ミタルモノ, $\frac{220}{1}$.

(PL. XXI-XXV, December, 1907).



K. Okam. del.

Nitophyllum uncinatum (Turn.) J. Ag.
かぎうすずのり

Nitophyllum uncinatum (Turn.) J. Ag.

Nom. Jap.: *Kagi-usuba-nori*.

PL. XXVI.

Nitophyllum uncinatum (Turn.) J. Ag. Sp. Alg. II, p. 654; Id, Epicr. p. 456; Ardis. Phyc. Medit. I, p. 255; Id., Florid. Ital. Vol. II. p. 48, Tav. VIII, Fig. 2; De Toni Syll. Alg. IV, p. 650; Hauck Meeresalg. p. 171; Nott Nitophylla of Calif. (Proceed. of Calif. Acad. Sc. Vol. II, 1900), p. 26, Pl. III, Fig. 12; Okam. Alg. Jap. Exsic. (岡村, 日本海藻標品) Fasc. II, No. 66; 岡村, 日本藻類名録 p. 49.—*Fucus laceratus* var. *uncinatus* Turn. Hist. Fuci tab. 68, fig. c-d.—*Cryptopleura lacerata* Kuetz. Tab. Phyc. XVI, tab. 25, fig. e.—*Acrosorium aglaophylloides* Zanard in Kuetz. Tab. Phyc. XIX, t. 10, f. a-b?

Hab.: Mostly grown upon the branches of *Sargassum* in the calm water; Provs. Iyo, Tango, Shima, Tōtōmi, Sagami, Bōshyū, Hitachi, Iwaki. Tetraspores and cystocarps: June—July (Bōshyū).

PL. XXVI. Fig. 15: portions of different forms of *Nitophyllum uncinatum*; Fig. 1: a typical form bearing tetrasporic sori; veinlets in fig. 5 too strongly represented; 1.—Fig. 6: portion of the typical frond bearing cystocarps, 1.—Fig. 7: two marginal root-like processes, $\frac{220}{1}$.—Fig. 8: cross-section of uncinated portion of frond; a, outer-, b, inner-side; $\frac{54}{1}$.—Fig. 9: surface-view of frond showing veinlets, $\frac{54}{1}$.—Fig. 10: cross-section of frond, $\frac{91}{1}$.—Fig. 11: surface-view of the growing margin of frond, $\frac{220}{1}$.—Fig. 12: portion of frond showing sporophylls, 3.—Fig. 13: surface-view of a tetrasporic sorus, $\frac{22}{1}$.—Fig. 14: cross-section of a sporophyll, $\frac{22}{1}$.—Fig. 15: portion of fig. 14, magd. to show the formation of tetrasporangia from the cells of the intermediate layer, $\frac{134}{1}$.—Fig. 16: cystocarp viewed from

above, magd.—Fig. 17: vertical section of a cystocarp, $\frac{22}{1}$.—Fig. 18: "Stielzelle" and spores, $\frac{91}{1}$.—Fig. 19: portion of pericarp marked α in fig. 17, $\frac{54}{1}$.

Nitophyllum Greville 1830.

うすばのり属

NITOPHYLLEAE (DELESSERIACEAE.)

うすばのり亞科 (このはのり科)

體ハ扁平ニシテ葉狀, 下部時トシテハ莖ヲナシ, 分裂スルコトナク, 或ハ叉狀又ハ種々ニ分裂シ若クハ分枝ス; 體ハ極メテ薄クシテ, 時ニ一層ノ細胞ヨリ成リ或ハ稍厚シ(殊ニ下部ニ於テ然リ); 其一層以上ノ厚ミヲ有スルモノニアリテハ細胞列ハ體ノ表面ニ直角ヲナシ決シテ枝ヲ分ツコトナシ; 而シテ體ノ表面ニハ細脈ナキアリ或ハ之ヲ有スルアリ, 其之アルトキハ脈ハ或ハ分枝シ或ハ網狀ヲナシ, 時ニハ又(殊ニ下部ニ於テ)明ニ分枝シタル且往々網狀ヲナセル稍太キ脈ヲナスモノアリ; 其中時トシテハ一, 二ノモノ中肋ノ如キ觀ヲ呈シテ稍太ク特ニ著明ナルコトアリ。成長線ニテハ成長點ハ早晚不明トナレドモ, 時トシテ永キ後マテ稍明ナルコトアリ; 體ノ表面成長ハ各細胞ノ各方面ニ介生的分裂ヲナスコトニヨリテ成サル; 第二次ニ生ズル細脈ハ成長點ヨリスルニアラズ。¹⁾

四分胞子囊ハ圓形ノ群ヲナシテ體ノ兩面ニ生ジ, 其部ハ少シク増厚シテ扁ク隆起ス; 而シテ群ハ體ノ表面ニ種々ニ形成セラル。胎原ハ體ノ表面ニ散布シテ生ジ, 多クハ細脈ト關係ナシ。囊果ハ體ノ表面ニ散在シ, 時トシテハ後ニ細脈又ハ稍太キ脈上ニ坐スルコトアリ,(其斯ノ如クナルモ決シテ其始

¹⁾ 第二次ニ生ズルモノト云フハ第一次即チ始ヨリ生セラルニアラデ, 初ヨリアル脉ノ外ニ更ニ細脈ヲナスモノナルガ故ニ多クハ第一次ノ細脈以外ノ細胞ヨリ成ルナリ。

メ形成セラル、時ニ當テ脈上ニアルニアラザルコトハ胎原ノ脈ト關係ナキヲ以テ知ルベシ、故ニ“後ニ”ト記セリ);而シテ稍半球狀ヲナシテ、體ノ兩面ニ膨起ス。胎座ハ概子甚シク小ニシテ不明ナレドモ其中央ヨリ大ナル仁柄細胞立チ、之ヨリ胞子絲ヲ發出ス;胞子ヲ形成スル絲ハ可成リ多ク且ツ分岐シテ多少緩ク結合セラル。胞子ハ胞子絲ノ頂端ニ生ズルカ或ハ二三個連鎖シ、同時ニ若クハ相前後シテ胞子ヲ熟シ、仁ハ球狀又ハ稍腎臟形ノ單塊ヲナス。

約五六十種アリテ諸所ノ海ニ產ス。此屬ノ種類ハ甚シク形狀ヲ異ニスルモノアルヲ以テ各種ニ就テ充分精細ナル研究ヲナス時ハ數多ノ屬ニ分タル、ヲ必スレドモ從來未ダ之ガ根本的正當ナル分類ヲ見出スコト能ハザルナリ。

屬ノ名ハ Niteo (輝ク) ト Phyllon (葉) トヨリ成ル、即チ光澤アル葉ノ意ナリ。

Nitophyllum uncinatum (Turn.) J. Ag.

かぎうすばのり 岡村稱

第 XXVI 圖版.

體ハ概子下部ヲ以テ他ノ海藻上ニ匍匐シ、其游離部ヲ以テ直立スト雖モ、或ハ下部僅ニ匍匐シテ殆ド直立セル如キアリ、然レドモ決シテ莖ヲ有スルコトナク、又中助ヲ存スルコトナシ。體ハ線狀ニシテ極メテ薄ク、表面ニ縱走セル顯微鏡的細脈ヲ有ス;脈ハ極メテ細微ナルヲ以テ往々肉眼ニテ見ル能ハザレドモ、或ハ僅ニ見ラル、モアリ:而シテ所々枝ヲ分チ稍網狀ヲナス。分枝法ハ不規則ナル羽狀ニシテ、所々叉狀ヲナシ叉掌狀ヲナス等極メテ一定ナラズ;幅モ概子狭細ナルヲ常トスレドモ

往々潤キモアリ隨テ幾分線狀ナラズシテ楔形ヲナスモノアリ; 或ハ下半部ハ潤クシテ上部ノ枝ハ漸次細クナレルモノアリ; 枝ノ頂端ハ概子尖銳ナルヲ常トスレドモ、又處々稍開張シテ鈍圓ヲナスモノ少ナシトセズ、而シテ多少下方ニ灣曲シテ鉤狀ヲナス傾向アリ; 此鉤狀部ハ概子枝端ニアルヲ常トスレドモ或ハ枝ノ緣邊ニ之ヲ存スルアリ。此鉤狀部ヲ以テ枝ハ互ニ纏絡シ、或ハ他ノ海藻ニ巻絡ス; 故ヲ以テ、鉤狀部ノ内側ハ接觸刺擊ニヨリテ其巻絡ヲ有効ナラシムル爲メ増厚スルコト第8圖ニ見ルガ如シ。枝ハ此裝置ニ依リテ互ニ纏フノミナラズ、又體ノ緣邊ヨリ往々根様突起ヲ出シテ互ニ癒着シ、或ハ他體ニ固着ス(7圖)。體ノ長サハ一定セザレドモ約 10-15 cm.ニ達シ、幅ハ 3-12 mm. アリ。體ノ緣邊ハ全緣若クハ微細ナル鋸齒ヲ存スルコトアリ。

四分胞子囊ハ體ノ兩緣ヨリ生ズル小サキ裂片ノ頂端下ニ圓キ群ヲナシテ其兩面ニ生ジ、其部ハ少シク増厚ス; 此裂片ハ特ニ此目的ヲ以テ、體ノ兩緣ヨリ生ジタルモノト見ルベク、又ハ、伸長セザル普通ノ枝トモ見ルベシ。囊果ハ體ノ緣邊ニ近キ表面ニ坐シ、體ノ兩面ニ生ズ、而シテ半球狀ニシテ頂部少シク嘴狀ニ伸ビ以テ開口ス、故ヲ以テ恰モ盃ヲ伏セタルガ如キ狀ヲ呈ス、罌粟粒大ナリ。色ハ淡紅色ニシテ極メテ美ナリ。質ハ薄キ膜質ニシテ乾燥スルトキハ不充分ニ紙ニ付着ス。

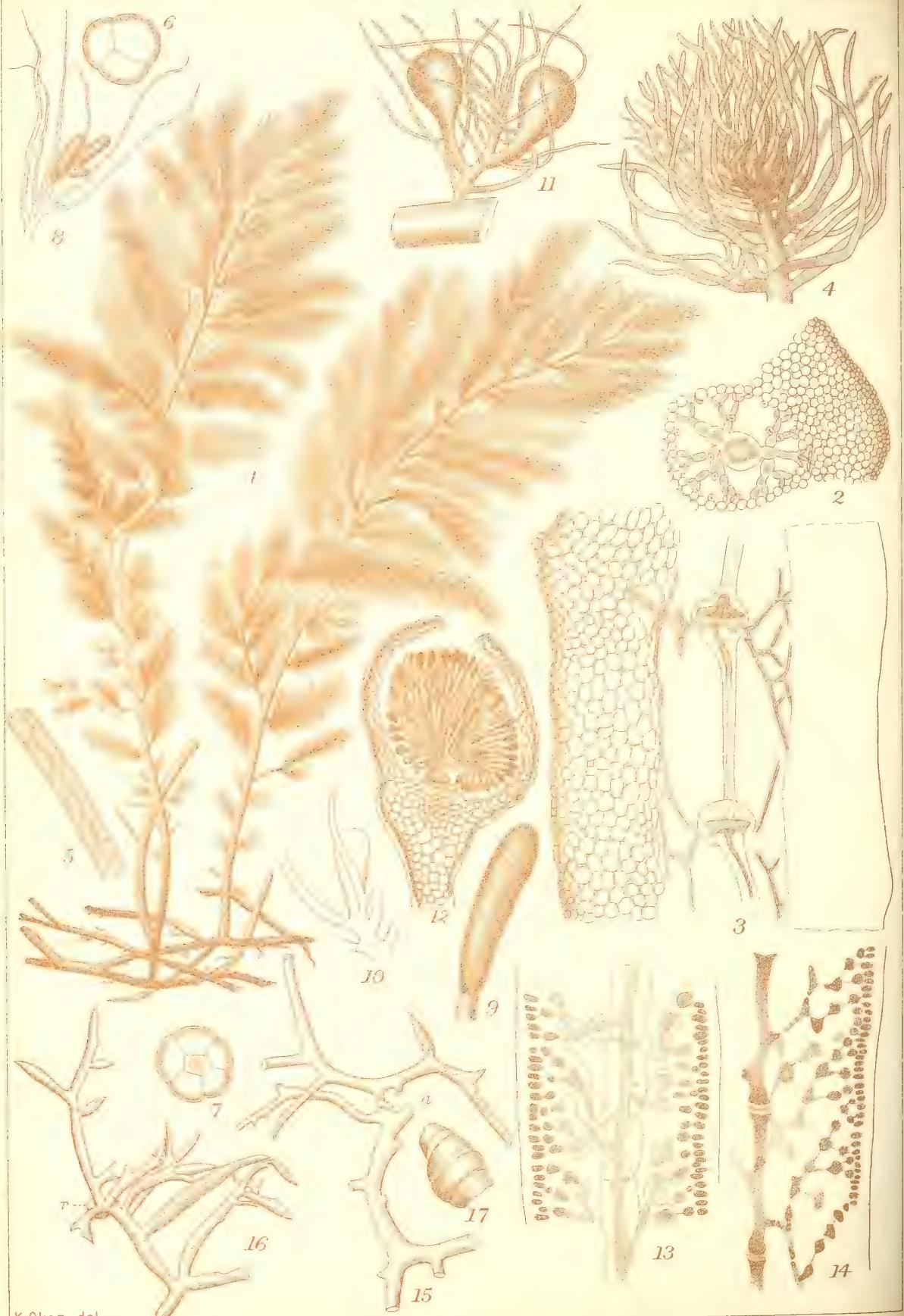
產地: 多クハほんだわら類ノ枝ニ纏絡ス; 静ナル處ニ多シ。伊豫新濱、丹後、志摩、遠江、相模、房州根本、常陸、磐城小名濱。四分胞子及囊果:一六七月(房州)。

分布: 地中海; 大西洋(カナリー島、英國); 喜望峰。

本種ハ多少形狀ヲ異ニスルモノアルヲ以テ、彼是相比スルニアラザレバ、單獨ノ個體ニ就テ種ヲ定ムルコト稍難シト



Pterosiphonia pennata (Roth) Fkbg. はねぐさ. Figs. 1-11.
Endocladia complanata Harv. いそだんつう. Figs. 12-20.



K.Okam. del.

Asparagopsis Sanfordiana Harv. カギケのり Figs. 1-12.
Endocladia complanata Harv. いそだんつう Figs. 13-17.

スルモノアリ、而シテ本種ニ酷似シタルモノニ *N. laceratum* (Gmel.) Grev. ト稱スルモノアリ、其性質能ク本種ニ類スレドモ、此ハ縱走セル細脈稍明ニシテ枝端マデ達スルト、體ノ下部短莖ヲナスト、又其胞子群アルモノニテハ、概子體ノ緣邊ニ沿フテ之ヲ生ジ、後相合ーシテ線狀ヲナストヲ以テ異ナリトス。

●第 XXVI 圖版. 1-5: 種々ノ形狀ヲナセルかぎうすばのりノ體ノ一部、就中第 1 圖ハ模範トスペク且ツ實アルモノニシテ、4-5 トノ如キハ稍極端ノ形セルモノナリ；第 5 圖ノ脈ハ少シク強過ギタリ、實際ハ辛フジテ見ユル位ナリ；1-6: 囊果ヲ有スル體ノ一片、1-7: 體ノ緣邊ヨリ根様突起ヲ生ジタル狀、 $\frac{220}{1}$ —8: 鈎狀部ノ橫斷面；a. 鈎ノ外緣；b. 内緣； $\frac{54}{1}$ —9: 體ノ表面ニ細脈ノ縱走スル狀、 $\frac{54}{1}$ —10: 體ノ橫斷面、 $\frac{91}{1}$ —11: 體ノ成長端ノ表面、 $\frac{220}{1}$ —12: 四分胞子群ヲ有スル裂片、 $\frac{3}{1}$ —13: 四分胞子群ノ表面、 $\frac{22}{1}$ —14: 四分胞子群ノ橫斷面、 $\frac{22}{1}$ —15: 其一部ヲ廓大シテ中層ノ細胞ヨリ胞子ヲ生ズル狀ヲ示ス、 $\frac{134}{1}$ —16: 囊果ヲ上ヨリ見タルモノ、廓大—17: 囊果ノ縱斷面、 $\frac{22}{1}$ —18: 仁柄細胞ヨリ胞子絲ヲ發出スル狀、 $\frac{91}{1}$ —19: 第 17 圖ノ a 部ヲ廓大シテ果皮ノ構造ヲ示ス。

Pterosiphonia pennata (Roth) Fkbg.

Nom. Jap.: *Hané-gusa*.

PL. XXVII, Fig. 1-11.

Pterosiphonia pennata (Roth) Fkbg. Rhodom. (1901) p. 263, tab. 2, f. 1-2; De Toni Syll. Alg. IV, p. 998; Okam. Alg. Jap. Exsic. (岡村、日本海藻標品) Fasc. II, No. 71; 岡村、日本藻類名彙 p. 63.

—*Ceramium pennata* Roth *Catalecta Bot.* II, p. III, (1800).—*Poly-*
siphonia pennata J. Ag. *Alg. Med.* p. 141; Id. *Sp. Alg.* II, p. 928;
Kuetz. *Sp. Alg.* p. 803; Id. *Tab. Phyc.* XIII, t. 23, f. e-f; Zanard.
Icon. Phyc. Adr. III, p. 113, t. 108, A; Ardiss. *Phyc. Medit.* I, p.
365; Hauck *Meeresalg.* p. 238.—*Polysiphonia pinnulata* Kuetz.
Phyc. Gener. p. 416; Id. *Sp. Alg.* p. 803; Id. *Tab. Phyc.* XIII, t.
23, f. a-d?

Hab.: On rocks between tide-marks. Kobama (Prov. Kadzusa), Prov. Sagami. Tetrasporangia:—Spring.

PI. XXVII, Fig. 1-11. Fig. 1: fronds of *Pterosiphonia pennata*, $\frac{1}{4}$.—Fig. 2: lower rooting portion of frond showing roots, r , $\frac{12}{1}$.—Fig. 3: portion of frond to show general appearance of ramification, $\frac{5}{4}$.—Fig. 4: portion of frond showing the arrangement of simple and compound pinnæ rising from every second joint, $\frac{54}{1}$.—Fig. 5: apical growing portion of frond with the apical cell, α ; the distichous arrangement of branches is here slightly disturbed as it is seen in that of the uppermost two young branches, $\frac{340}{1}$.—Fig. 6: surface-view of a branch showing the congenital growth, $\frac{220}{1}$.—Fig. 7-9: cross-sections of different parts of different branches; Fig. 9 shows the section of congenitally united portion, $\frac{220}{1}$.—Fig. 10: portion of branch showing tetrasporiferous ramuli, $\frac{42}{1}$.—Fig. 11: cross-section of a ramulus bearing tetrasporangia; α , central axis; β , pericentral cell which carries a tetrasporangium (not shown in the figure) above; d , d' , cover-cells of a tetrasporangium, $\frac{220}{1}$.

Pterosiphonia Falkenberg 1889.

はねぐさ属

POLYSIPHONIEAE (RHODOMELACEAE).

いとぐさ亞科 (ふぢまつも科).

體ハ直立シ又ハ匍匐セル根莖ヲ以テ直立シ、扁圓又ハ扁平ニシテ兩緣ヨリ枝ヲ互生ス、細胞組織ニテナル。周心細胞ハ5-12條ニシテ明ニ横ニ關節シ、終世皮層細胞ヲ被ラズシテ裸出し、或ハ早晚之ヲ以テ蔽ハル；皮層細胞ハ多少厚キ層ヲナシ、内部ハ大ニシテ外方ニ小ナル細胞ヲ以テ成ル。枝ハ長キ又ハ短キ、太キ又ハ細キ刺狀ヲナセルモノト早晚限リアル伸長ヲナスベキ側枝トヲ互生シテ羽狀ヲナス、而シテ側枝モ亦同様ニ羽狀ヲナシ、其狀恰モ上部ニ羽狀ヲナセル刺狀枝ノ如シ。刺狀枝ハ其基部ニ於テ主枝ト多少癒着シ、以テ主枝ノ兩側ニ翼ヲ添ヘタル如クナラシム。頂端成長ハ單基的ニシテ明ナル成長點細胞ヲ有シ、其下ナル關節細胞ハ盤狀ヲナシ、或ハ一側面ニ膨起シ、此部ヨリ枝ヲ生ズ。單管ノ毛狀葉ハ決シテ成長點附近ニ生ズルコトナシ。

生殖器ハ上部ノ枝ニ生ズ。四分胞子囊ハ主枝ノ扁平ナル倒面ニ沿ヒ、又ハ單一ナル若クハ羽狀ヲナセル刺狀枝ニ沿ヒテ多數ニ形成セラレ、連續セル若クハ斷續セル真直ナル縦列ヲナシ、各關節ニ一個ヲ藏ス；而シテ枝ノ基部往々互ニ癒着スルモノアルヲ以テ、之ガ爲ニ時トシテハ恰モ二縦列ノ如クナルアリ；四分胞子囊ハ僅ニ隆起シ、多クハ三個ノ不同長ナル蓋細胞ヲ以テ蔽ハル。精子器ハ知ラレズ。胎原ハ細長キ枝ニ生ジ、數ハ一定スルコトナク、刺狀枝ト交互シテ生ジ、胎原列ノ周圍ヲ繞ラスニ細胞ヲ以テスルニヨリ稍太シ。囊果ハ卵形ニシテ枝ノ側面ニ坐シ、果皮ハ可ナリ厚シ。

約 10 種アリテ諸所ノ海ニ産ス 本邦亦二、三ノ種アリ。
属ノ名ハ pteron (翼) ト siphon (管) トヨリ成ル, 即チ周心細胞
ヨリ成レル枝相癒着シテ幾分扁平ニ開張スレバナリ。

Pterosiphonia pennata (Roth) Fkbg.

はねぐさ 岡村稱

第 XXVII 圖版, I-II 圖.

體ハ概子 3-6 cm. 高ク, 罩ニ尙ホ高キアリ, 線狀ニシテ下部
ハ匍匐セル莖ヲナシ, 之ヨリ直立スル體ヲ生ズ。各枝ノ輪廓
ハ線狀ニシテ, 兩緣ヨリ羽狀或ハ再羽狀ヲナス; 小羽枝ハ單條
ナルアリ又ハ最末羽狀ヲ分ツアリ, 此モノ後發育伸長シテ大ナ
ル枝トナリ以テ枝態ヲ複雜ナラシム。小羽枝ハ各二關節ヲ
距テ、出デ, 下部ニアルモノハ廣開シ, 成長點附近ニアルモノ
ハ著シク内方ニ屈曲ス, 而シテ稍太キ基部ヨリ漸次上方ニ細
リ, 長クシテ柔軟ナリ。體ハ皮層細胞ナキヲ以テ關節ハ各部
ニ明ニシテ, 長サハ其直徑ノ三分一程ナルコトアリ, 或ハ稍長
キコトアリ而シテ枝ノ横斷面ハ概子 8-9 個ノ周心細胞ヲ存ス,
其各細胞略同大ナリ。四分胞子囊ハ單條ノ小羽枝ニ生ジ一
縱列ヲナス。色ハ新鮮ノ時ハ紅褐色ナレドモ, 乾燥スルトキ
ハ黒變ス。質柔軟ニシテ僅ニ強靭ナレドモ, 乾燥スルトキハ
稍硬クナリ, 脆クシラ紙ニ付着スルコトナシ。

はねぐさノ名ハ小羽枝ノ羽狀ヲナスニ取レリ。

產地: 潮線間ノ岩石ニ生ズ。上總小濱, 相模。(此他暖流
區域内ニ尙ホ多カルベシ) 四分胞子囊: 春季。

分布: 大西洋温暖部(佛國, イスパニア, 亞弗利加); 地中海
(佛國沿岸, 伊國, コルシカ, シ・リー, サルジニア; アドリアチツ
ク海(ダルマシア); ニウホルラント。

第 XXVII 圖版, 1-11 圖. 1: はねぐさノ叢, 1-2: 體ノ下部匍匐シテ根, r, ヲ出セル狀, $\frac{1}{1}^2$.-3: 枝態ノ全般ヲ示セルモノ, $\frac{5}{1}$.-4: 單條及複條ノ羽枝ガ各二個ノ關節ヲ距テ、出ル狀ヲ示ス, $\frac{54}{1}$.-5: 體ノ成長端; a. 頂細胞; 枝ノ兩緣ヨリ正シク出ル排置ノ少シク亂レタルコトハ最上位ニアル二個ノ枝ノ出方ニ就テ見ルベシ, $\frac{340}{1}$.-6: 枝ノ下部ノ癒着スル狀, $\frac{220}{1}$.-7-9: 別々ノ枝ノ各部ノ横斷面; 9圖ハ癒着シタル部分ノ横斷面, $\frac{220}{1}$.-10: 四分胞子囊ヲ有スル枝ノ一部, $\frac{12}{1}$.-11: 四分胞子囊ヲ有スル枝ノ横斷面; a, 中軸; p, 周心細胞ニシテ, 此細胞ヨリ四分胞子囊ヲ生ジ, 之ヲ其上ニ戴ク(圖ニハ四分胞子囊ハナシ, 縱斷面ニアラザレバ此關係ヲ示ス能ハズ; pハ即チ四分胞子囊ノ下ノ細胞ナリ); a, a, 蓋細胞, $\frac{220}{1}$.

Endocladia complanata Harv.

Nom. Jap.: *Iso-dantsū*.

PL. XXVII, Fig. 12-20; PL. XXVIII, Fig. 13-17.

Endocladia complanata Harv. Char. of new Algae n. 37; J. Ag. Epicr. p. 559 (nomen); De Toni Phyc. Jap. Nov. (1895) p. 23; Id. Syll. Alg. IV, p. 177; Okam. Alg. Jap. Exsic. (岡村, 日本海藻標品) Fasc. II, no. 56; 岡村, 日本藻類名彙 p. 23.

Diagn. Fronds dwarf, gregarious, forming widely spreading patches, filiform, terete or slightly compressed, with very irregularly dichotomo-pinnate often recurved branches. Branches sharply pointed, spine-like, often dilated above into cuneate segments with fimbriated apices, and unite and entangle to each other by the formation of root-

like processes from the places where they come in contact. Tetrasporangia densely collected in slightly thickened branchlets.

Hab. Densely aggregated on the rocks at high-tide. Common along the Pacific coast of this country from Kyushu to Cape Kin-kwazan. Sori :—Early in summer.

Fronds dwarf, gregarious forming widely spreading patches of dense and soft mat, erect or rising from secondarily decumbent and rooting filaments, terete or slightly compressed, often complanated above. Ramification very irregular being between pinnate and dichotomous ; some of branches are more or less elongated and pinnate, but usually more shortened and furnished with simple or branched, shorter or longer spine-like branchlets ; they are usually strongly recurved. Often branches and branchlets slightly dilate upwards into subcuneate segments and become densely decompounded in subdichotomous manner as if crisped, being toothed on the upper margin (Fig. 16). Branches of every order taper into sharp points rising from equally broader bases and attach themselves to substratum or fuse to each other by forming root-like attachments at the place where they come in contact ; and thus fronds become decumbent. Growing apex of frond is provided with an alternately and obliquely articulated terminal cell, and the frond is constructed by repeatedly dichotomous cortical filaments arising on all sides from the elongated axial cells, Rhizoidal filaments are almost wanting.

Tetrasporangia form nematocelia-like sori in slightly thickened branchlets, and also scattered in other segments. Cystocarps unknown. Colour dark reddish brown, changing to almost black in drying. Substance soft but rather harsh to touch when recent, becoming somewhat rigid after drying.

The identification of our plant with Harvey's *Endocladia complanata* was done only by the comparative study of the structure of frond of *Endocladia muricata* from America, knowing neither the original specimens nor their photographs, nor asking anyone abroad to take the trouble of comparing our materials with the original specimen of that species.

Assuming that my identification is correct, I gave the diagnosis of the species above, as Harvey's is too short to determine with.

In De Toni's Syll. Alg. IV, p. 177, *End. ? rigens* (Mart.) Grun. (= *Gelidium rigens* Mart.) is suspected to be identical with the present plant. But as the latter is not used as edible sea-weeds among ours, the former might not be same as the latter.

PL. XXVII, Fig. 12-20. Fig. 12: fronds of *Endocladia complanata* in nat. state and size.—Fig. 13: rather regularly branching and well elongated frond (from Prov. Mikawa), a little larger than the nat. size.—Fig. 14: portion of the same, $\frac{5}{1}$.—Fig. 15-16: portions of ordinary dwarf and irregularly branching fronds (from Prov. Idzu): α , place where branches have united to each other; $\frac{10}{1}$.—Fig. 17: portion of ordinary dwarf frond (from Amakusa Isl.), $\frac{12}{1}$.—Fig. 18: two root-like processes (on both sides), $\frac{54}{1}$.—Fig. 19: growing apex of frond, $\frac{350}{1}$.—Fig. 20: cross-section of frond $\frac{80}{1}$.

PL. XXVIII, Fig. 13-17. Fig. 13-14: longitudinal section of frond, $\frac{220}{1}$.—Fig. 15: two pieces of branches coming into cohesion at α ; one of the branches bearing sori, (from Prov. Mikawa), $\frac{12}{1}$.—Fig. 16: frond bearing tetrasporic sori (from Amakasu, Isl.); r , root, $\frac{1}{1}$.—

Fig. 17: tetraspore, $\frac{350}{1}$.

Endocladia J. Agardh 1841.

いそだんつう属

ENDOCLADIEAE (GIGARTINACEAE.)

いそだんつう亞科 (すぎのり科).

體ハ圓柱狀ニシテ各方面ニ極メテ多ク分枝シ, 小刺若クハ瘤狀ノ突起ヲ以テ蔽ハレ, 明ニ絲組織ヨリ成ル: 即チ, 可ナリ太キ一條ノ中軸アリテ, 之ヨリ斜ニ上方ニ屢々叉狀ニ分レタル枝ヲ分枝ス; 此枝内方ニハ稍緩ク排置シテ長キ關節ヨリ成リ, 外方ニハ漸々小細胞トナリテ密集シ, 終ニ全ク密ニ相接シテ以テ皮層ヲナス; 中軸ハ長キ細胞ヨリ成リ, 成長端ニアリテハ交互ニ斜面ヲ以テ關節セル頂細胞ヲ有ス; 皮部ノ内層ハ叉狀ニ分岐セル短キ關節ヨリ成レル根様細胞ヲ多少密ニ存シ, 中軸モ亦縱走セル同様ノ細胞ヲ以テ多少密ニ圍繞セラル. 粘質ハ可ナリ多クシテ柔軟ナリ.—四分胞子囊ハ少シク太クナリタル枝ニ生ジ, 「子マセーシア」狀ニ膨レタル皮層中ニ散在シ, 環狀ニ分裂ス. 胎原ハ内部ノ稍緩ミタル根様細胞ノ少ナキ枝ニ多數ニ生ジ, 皮層組織ノ中央部ニ存ス, 而シテ皮部ヲ形成セル絲ノ側枝トシテ生ズル短キ枝ニ助細胞ト胎原トヲ形成スルモノニシテ, 其短キ枝ハ二個(若クハ尙多クノ)細胞ヨリ成リテ往々分叉シ, 其頂端ノ細胞肥大シテ一個ノ助細胞トナリ, 更ニ此助細胞ヨリ鉤状ニ屈曲セル二個細胞ヨリ成レル胎原列ヲ其側面ニ生ズ; 胎心細胞ハ其存立極メテ一時的ナリトス. 成胞絲ハ受胎シタル助細胞ヨリ起リ, 皮層ノ内部ノ稍緩ミタル組織中ニ於テ專ラ體ノ内部ノ方ニ極メテ盛ニ分岐ス; 而シテ其枝ハ體ノ組織ヲ構成セル細胞列ノ間ニ蔓延シ, 相互ニ錯綜シ, 屢々此等ノ細胞ト連絡點ヲ形成シテ連絡若クハ癒合シ, 斯ケ

テ其末端ニ近ク終點ノ細胞及ビ其關節細胞變ジテ胞子トナル
仁ハ絲狀細胞ノ不規則ニ錯綜シタル網ニシテ其網目ヲ不規
則ニ填充セル多數ノ胞子ヨリ成ル;此網ヲ爲ス絲狀細胞中ニ
ハ皮層ヲ作レル分岐シタル絲ノ稍太キモノ特ニ目立チテ見ユ;
仁ハ其周圍ヲ圍繞セル絲組織ナク,體ノ少シク隆起シタル部
分ノ中ニ埋在ス. 囊果ハ枝ノ頂端ニ近ク其側面ニ輕ク膨大
シテ生ジ,短キ刺ヲ戴ク. 果皮ハ其部ノ皮層ノ增厚シタルモ
ノヨリ成リ,外見上果孔ナシ.

從來知ラレタルモノハ三種ニシテ極メテ小サク叢生セル
小植物ヲナシ,「プラジル」及米國ノ北西部沿岸ニ生ズ. 本邦
所產ノモノハ太平洋ニ產スル唯一ノ種ナリ. 屬ノ名ハ endos
(内部) ト clados (枝) トヨリ成ル; 即チ體ノ内部ノ構造ニ依レルモ
ノナラン.

Endocladia complanata Harv.

いそだんつう 岡村稱

第 XXVII 圖版, 12-20 圖; 第 XXVIII 圖版, 13-17 圖.

性質: 體ハ矮小ニシテ, 簇生シ, 廣ク蔓延シ, 絲狀ニシテ圓
柱狀又ハ扁壓, 極メテ不規則ニ叉狀様羽狀ニ分岐シ, 往々反曲
セル枝ヲ有ス. 枝ハ銳ク尖リ, 刺狀ヲナシ, 往々上部ノ方ニ楔
形ニ擴ガリ, 其頂端細齒狀ヲナス, 而シテ互ニ接觸シタル箇所
ヨリ根ノ如キ突起ヲ出シテ癒着シ以テ錯綜ス. 四分胞子囊
ハ稍太リタル小枝ニ群集ス.

產地: 高潮線ノ岩石上ニ密ニ簇生ス. 九州ヨリ金華山
ニ至ル間ノ太平洋沿岸ニ普通ナリ. 四分胞子: 初夏.

記載：體ハ矮小ニシテ簇生シ，廣ク蔓延セル班ヲナシ，直立シ或ハ後傾臥シテ根ヲ以テ匍匐セル部分ヨリ斜上シ，圓柱狀又ハ稍扁圓，往々上方ニ扁壓ス。分枝法ハ極メテ不規則ニシテ羽狀樣叉狀ヲナス；或枝ハ多少長クシテ羽狀ヲナセドモ，通常概々短クシテ單條若クハ分枝セル短カキ若クハ長キ刺狀ノ枝ヲ存ス；枝ハ往々強ク反曲ス。枝及小枝ハ又往々上部ニ於テ少シク開張シテ楔形ヲナシ，稍叉狀ノ如ク屢々分岐シ，頂端ニ細齒ヲ有ス（第16圖）。各部ノ枝ハ尖銳ニシテ別段細カラザル基部ヲ以テ立チ，其互ニ相接觸スル箇所ヨリ根ノ如キ付着器ヲ形成シテ互ニ癒着シ，並ニ地物ニ付着ス；斯くて體ハ傾臥スルニ至ル。體ノ成長端ハ交互ニ斜面ヲ以テ關節セル頂細胞ヲ存ス，而シテ體ハ長キ中軸細胞ヨリ各方面ニ互生セル復叉狀ノ皮層絲ヲ以テ構成セラル；根様細胞ハ殆ド之ヲ欠ク。

四分胞子囊ハ少シク太リタル小枝ニ「子マセシア」狀ノ群ヲナシテ生ジ又他ノ部ニモ散在ス。囊果ハ詳ナラズ。色ハ暗紅褐色ニシテ，乾燥スルトキハ殆ド黑色ニ變ズ。質ハ柔軟ナレドモ，新鮮ノ時之ニ觸ルハトキハ稍硬キ感アリ，後乾燥スルトキハ稍硬變ス。

備考：本種ヲ定ムルニ當リ，之ヲ Harvey 氏ガ命ジタル新種 *Endocladia complanata* ニ當ツルニ就テハ，只 America ヨリ來レル *Endocladia muricata* ノ體ノ構造ヲ比較研究シタルノミニシテ，別段之ガ原標品若クハ其寫真等ヲ見タルニモアラズ。又之ト比較ノ勞ヲ海外ノ學者ニ依頼シタルニモアラズ；然レドモ予ノ此鑑定ハ略ボ誤ナキモノト信ジテ，予ハ本種ノ性質ヲ上記セル如ク定メタリ；蓋シ曩ニ Harvey 氏ガ與ヘタル記載ハ簡ニ過ギ以テ之ヲ識別スルニ足ラザレバナリ。

昔 (1866) Schottmueller 氏ガ我横濱ノ某商家ノ店頭ニ寒天ノ如ク溶解サレテ四角ナル形ヲナセル食用藻アリタリトテ之ヲ買

取リテ歸國ノ後調査シタルモノヲ *Gelidium? rigens* トシテ我「フロラ」ノ中ニ置ケリ; 此種 De Toni Syll. Alg. IV. p. 177 = *Enocladia? rigens* (Mart.) Grun. ト改メラレテ今此處ニ記セル種ト同一ニハ非ルカトノ疑ヲ以テ載セラレタレドモ, 本種ハ我邦ニテ食用トセザルヲ以テ多分夫トハ別物ナラント思惟ス; 尚ホ考フベシ.

第 XXVII 圖版, 12-20 圖. 12: いそだんつうノ自然ノ状態, 13: 稍規則正シク分枝シ且能ク成長シタル體(三河產), 自然大ヨリ少シク大ナリ.—14: 同上ノ枝ノ一部, 15-16: 枝ノ極メテ不規則ナル矮小ノ體ノ一部(伊豆產); a, 枝ノ癒着シタル所; 17: 常態ノ矮小ナル體ノ一部(天草島產), 18: 枝ヨリ根ノ如キ突起(左右各一個)ヲ生ジタルモノ, 19: 枝ノ成長端, 20: 體ノ横斷面.

第 XXVIII 圖版, 13-17 圖. 13-14: 體ノ縦断面, 15: 枝ノ互ニ癒着スル狀, 枝ノ一ハ胞子ヲ熟ス(三河產); a, 癒着部, 16: 四分胞子囊ヲ有スル枝(天草島產); r, 付着器, 17: 四分胞子, 20.

Asparagopsis *Sanfordiana* Harv.

Nom Jap.: *Kagi-kenori*.

PL. XXVIII, Fig. 1-12.

Asparagopsis Sanfordiana Harv. Phyc. Austr. tab. VI; De Toni, Syll. Alg. IV, p. 771; 岡村. 日本藻類名彙 p. 53.

Hab. On rocks in deep water (4 fath. at Hirado Str.): Ryukyu (col. Inui, Kuroiwa), Ogasawara-dzima (col. Matsumoto), Str. Hirado, Gō-no-ura (Prov. Iki, col. Toida).

Antheridia and cystocarps:—late spring to summer.

In Engler und Prantl's Pflanzenfam. Th. I, Abth. 2, p. 420, it is mentioned under generic character of the present genus, that antheridia are also formed in cystocarpic frond. But in our materials, fronds bearing antheridia are different from those bearing cystocarps.

Pl. XXVIII, Fig. 1-12 : Fig. 1 : portion of fronds of *Asparagopsis Sanfordiana* in nat. state and size.—Fig. 2 : portion of the cross-section of stem, $\frac{4}{1}$.—Fig. 3 : longitudinal section of stem, $\frac{4}{1}$.—Fig. 4 : one of ramuli densely loaded with decussate and opposite, simple or compound ramelli, $\frac{5}{1}$.—Fig. 5 : surface-view of a young ramellus, $\frac{8}{1}$.—Fig. 6 : cross-section of a very young ramellus, $\frac{34}{1}$.—Fig. 7 : cross-section of a little advanced ramellus, $\frac{22}{1}$.—Fig. 8 : ramulus bearing antheridia, $\frac{22}{1}$.—Fig. 9 : antheridium, $\frac{9}{1}$.—Fig. 10 : young cystocarp, $\frac{5}{1}$.—11 : fully formed cystocarps, $\frac{22}{1}$.—Fig. 12 : vertical section of a cystocarp, $\frac{5}{1}$.

Asparagopsis Montagne 1840.

かぎけのり属.

BONNEMAISONIACEAE. がぎのり科.

體ハ圓柱狀又ハ僅ニ扁ク,各方面ニ多ク枝ヲ分チ,枝又甚密ニ分枝ス,而シテ其密ニ分枝セルモノハ恰モ小サキ筆頭狀ヲナス;此筆頭狀ノ枝ノ小枝ハ多クハ對ヲナシ,各對不規則ニ相交互ス,而シテ各對ノ二個ノ小枝ハ互ニ斜ニ對生ス. 頂細胞ハ横ニ關節シ,其關節面ハ斜面ニシテ各側ニ(或ハ斜ニ二側面ニ)交互ス. 體ハ三層ヨリ成ル;即チ,中心ニ一條ノ中軸ヲ有シ,其周圍ニ圓形一多角形ノ細胞ヨリ成レル厚キ皮部組織アリテ,其最外層ハ皮層ヲナス,而シテ中軸細胞ノ關節點ヨリ分歧セル絲狀細胞ヲ以テ皮部組織ヲ連絡ス. 小枝ノ稍太キモ

ノ及ビ枝ハ之ト同様ノ構造ヲ有ス。——四分胞子囊ハ知ラレズ。精子器ハ囊果アル體ニモ存ス。胎原列ハ稍太キ短キ特別ノ小枝ノ頂端ニ生ジ、其小枝ハ束狀ヲナセル枝ノ下部ニアリ。囊果ハ上ニ云ヘル如キ短キ小枝ノ頂端ニ一個宛生ジ稍斜ニ付着シ、球狀-卵形ニシテ甚シク膨大シ、束狀ヲナセル枝ノ下部ニ在リテ長キ柄ヲ以テ立ツ。

三種アリテ諸所ノ温暖ノ海ニ產ス。模範種タル *A. Delileiⁱ* Montagne (= *Dasya Delilei* Mont.) ハ「カナリー」島及西印度ニ產ス其他濠洲ニ產スル種モアリ。屬ノ名ハ *Asparagus* (くさすぎかづら) *opsis* (類似) トヨリ成ル; 即チくさすぎかづらニ似タル形態ヲ存スルニ依ル。

Asparagopsis Sanfordiana Harv.

かぎけのり 岡村稱。

第 XXVIII 圖版, 1-12 圖。

體ハ根莖ヨリ直立シ、根莖ハ不規則ニ分岐錯綜セル匍匐莖ニシテ鳥ノ羽軸程太ク、所々ニ尖細ナル小枝ヲ存シ、上方ニ數條ノ莖ヲ生ズ、莖ノ高サ 10-20 cm. アリ。莖即チ體ハ根莖ト同様ニ太ケレドモ漸次上方ニ細ク、單條又ハ僅ニ分岐ス。體ノ下部ハ多少枝ナケレドモ、上部ハ羽狀ニ多クノ枝ヲ生ズ。枝ハ體ノ各方面ヨリ互生シ、3-5 cm. 長ク、密ニ束狀ヲナセル小枝ヲ以テ蔽ハル。束狀ヲナセル小枝ハ枝ノ各方面ヨリ密生セルモノニシテ短ク、密ニ毛狀ノ最末小枝ヲ生ズル狀宛モ畫筆ノ如ク、其頂端鈍圓ナリ。最末小枝ハ絲狀ニシテ上方ニ細ク、皆内方ニ屈曲シ或ハ卷縮ス; 而シテ表面ハ多角形ノ小細胞ヨリ成ル。莖及枝ノ太キ部分ハ之ヲ表面ヨリ見ルニ關節スルコトアラザレドモ、内部ニ細長キ絲狀ノ中軸ヲ有シ、其周圍ニ厚

キ皮部組織アリ; 皮部組織ハ數層ノ圓形一多角形ノ大ナル無色ノ細胞ヨリ成リ, 其最外層ノモノ外皮ヲナス; 而シテ中軸ト皮部組織トノ間ニハ廣キ空隙アリテ, 中軸ノ關節部ヨリ分岐セル絲狀細胞ヲ發シ, 以テ中軸ト皮部組織トヲ結合ス; 此絲狀細胞皮層ノ内側ニ沿ヒテ空隙ヲ縱走ス。小枝及ビ最末小枝モ其太キモノハ莖ノ構造ト大差ナケレドモ, 幼者ハ 6-7 圖ニ見ル如ク, 始メハ中軸ナク後之ヲ生ズ。

精子器ハ最末小枝ヨリ變成シ棍棒狀ナリ。囊果ハ罌粟粒大ニシテ特ニ之ヲ生ズル爲ニ變形シタル短キ稍太キ最末小枝ノ頂端ニ生ジ, 倒卵形ニシテ束狀ノ小枝ノ下部ニ生ズ。仁ハ大ナル單塊ニシテ, 囊果ノ内底ニ立テル稍大ナル仁柄細胞ヨリ數多ノ分岐セル胞子絲ヲ發生シ, 其頂端ノ細胞棍棒狀ノ胞子ヲナス。四分胞子ハ未ダ詳ナラズ。色ハ濃キ紅褐色又ハ稍紫紅色ニシテ, 乾燥スルトキモ能ク保存セラル。質ハ莖及ビ枝ハ多肉ニシテ乾燥スルトキハ軟骨様トナレドモ, 小枝及最末小枝ハ甚ダ軟弱ニシテ能ク紙ニ付着ス。

かぎけのりノ和名ハかぎのりニ似テ毛狀ノ小枝多キニ依リ予ノ命ジタル處ナリ, 別ニ鉤狀ノ枝アルニアラズ。

產地: 低潮線以上ノ岩石ニ生ズ(平戸海峽, 四尋), 琉球(乾, 黒岩), 小笠原島(松本), 平戸海峽, 壱岐郷ノ浦(戸井田)。

分布: ニウホルランドノ西部。精子器及囊果: 晩春—夏季。

Engler u. Prantl's Die Natürl. Pflanzenfam. Th. I. Abth. 2, p. 420 ニ本屬ノ性質ノ條下ニ精子器ハ又囊果ヲ有スル體ニモ生ズトアレドモ, 本種ニアリテハ二者明ニ別々ノ體上ニアリ。

第 XXVIII 圖版, 1-2 圖. 1: かぎけのりノ自然ノ狀態, 1.—2: 莖ノ横斷面ノ半分, $\frac{4}{1}$.—3: 莖ノ縱斷面, $\frac{4}{1}$.—4: 束狀ヲナセル小



C. Okam. del.

Delisea japonica Okam. nov. sp.
たまいたゞき 新種

枝ノ全體ニテ最末小枝ノ交互ニ對生スル狀ヲ示ス。54.—5: 最末小枝ノ表面。80.—6—7: 最末小枝ノ横斷面; 6 圖ハ極メテ幼ク 7 圖ハ稍長ジタルモノ; 6: $\frac{340}{1}$, 7: $\frac{220}{1}$ —8: 精子器ヲ有スル小枝, $\frac{22}{1}$ —9: 精子器, $\frac{91}{1}$ —10: 幼キ囊果ヲ有スル小枝, $\frac{54}{1}$ —11: 成熟セル囊果, $\frac{22}{1}$ —12: 囊果ノ縦断面, $\frac{45}{1}$.

Delisea japonica Okam. nov. sp.

Nom. Jap.: *Tama-itadaki*.

BONNEMAISONIACEAE. かぎのり科.

Delisea pulchra (non Mont.) Okam. Alg. Exsic. (岡村, 日本海藻標品) Fasc. I, no. 19; *D. pulchra* var.? 岡村, 日本藻類名彙 p. 52.

Diagn. Fronds coespitose, linear, compressed, flat, thinly midribed, decompound pinnate, pectinated with delteo-subulate alternate teeth, which are patent and a little longer than the breadth of the rachis. Cystocarps sessile, each being situated on the midrib below the extremity of a ramulus, pointing obliquely to the midrib with the longitudinal axis of cystocarp making a widely obtuse angle with the lower portion of the midrib and almost right angle with the apical portion of the ramulus.

Hab. On rocks near low water-mark. Common along the Pacific from Kyushu to Prov. Kadsusa. Cystocarps:—summer.

Root a broad, circular disc. Fronds densely tufted, 20-25 cm. high. The lower part of frond, in older specimens, becomes for a short distance gradually thickened into a stem, which is tereto-compressed with or without remains of marginal teeth. Upwards, the

stem gradually passes into the flat, narrow-linear, costate, simple or forked, principal rachis of a 4-5 times repeatedly decompound pinnate frond. Branches and all their divisions are midribed, alternate and distichous, but the ramification is very unequal, long and short ramuli often alternating without order. The branches are about 2 mm. in breadth, and very gradually attenuate toward their bases. They are closely serrated with alternate, delto-subulate, erecto-patent teeth which are somewhat longer than the breadth of the rachis. The teeth are much longer and more incurved on the upper portion of branches, more especially so in young branchlets, than those on the lower portion. Cystocarps are seated on the midrib, just below the extermities of ramuli. The terminal portion of the ramulus bearing a cystocarp tends to the side opposite to its longitudinal axis. The longitudinal axis of cystocarp does not coincide with the lower portion of the midrib, but makes an angle of about 135° with it, while the upper part of the midrib turning to the other side makes an approximately right angle with the longitudinal axis of cystocarp. The carpostome does not point upward, but obliquely to the midrib and slightly above the plane of the ramulus. The inner wall of pericarp surrounding the neucleus is made up of somewhat anastomosing, filamentous rows of cells, which converge toward the carpostome. Neucleus is simple and spore-filaments are fasciculated from a pretty large central cell ("Stielzelle"), The cortical layer over the midrib is thicker than that on the membranous portion of frond.

Plant so closely allied to *Delisea pulchra* Mont. that I formerly referred it to that species in my "Alg. Jap. Exsic." no. 19. It differs however, from that species by its thinner substance and the slenderer midrib, in addition to the more important character of the position of cystocarp. In *D. pulchra*, as it is seen from the descriptions and illustrations given in Harvey's Phyc. Austr. pl. XVI, the cystocarp

has its terminal pore pointing upward and its longitudinal axis coinciding with the midrib, which are never the case in our plants. By the latter characters, I think it proper to separate the present plant from *D. pulchra*, with which the plant in question stands in so close resemblance that one may take it as a variety of the species mentioned.

Pl. XXIX.—Fig. 1: frond of *Delisea japonica* Okam., bearing cystocarps in nat. size.—Fig. 2: cross-section of stem, $\frac{22}{1}$.—Fig. 3: portion of longitudinal section of frond; α , midrib; $\frac{85}{1}$.—Fig. 4: half of the cross-section of frond, $\frac{85}{1}$.—Fig. 5: cross-section of lower portion of frond, showing the cortical layer over the midrib, $\frac{390}{1}$.—Fig. 6: cross-section of the upper portion of frond, showing the cortical layer over the midrib, $\frac{390}{1}$.—Fig. 7: portion of frond bearing cystocarps, $\frac{5}{1}$;—Fig. 8 the same, magd.—Fig. 9: vertical section of cystocarp, cut along the plane of $a b$ in fig. 8; the right side of the figure showing the under side of the cystocarp; α , the axis; c , “Stielzelle”; $\frac{52}{1}$.—Fig. 10: portion of spore-filaments arising from the “Stielzelle,” c , $\frac{390}{1}$.

Delisea Lamouroux 1819.

たまいたゝき属

BONNEMAISONIACEAE. かぎのり科.

體ハ多少扁平ニシテ羽狀ニ分枝シ、兩縁ニ沿ヒテ櫛齒狀ヲナセル齒片ヲ互生シ、時トシテハ下部ニ中肋ヲ存ス。體ノ構造ハ一條ノ中軸ヲ有シ、中軸ハ大ナル圓柱狀細胞ヨリ成リ、其周圍ハ特ニ小ナル數條ノ細胞ヲ以テ圍マル；而シテ更ニ數層ノ柔軟細胞ヲ以テ圍繞セラレ、其最外層ノモノ薄キ皮層ヲナ

ス。 頂細胞ハ兩側ニ交互ニ斜ニ關節ス。——四分胞子囊ハ枝ノ頂端ニ近ク瘤狀ノ「チマセシア」ヲナシテ枝ノ表面ニ生ジ、多少正シク環狀ニ分裂ス。 囊果ハ上部ノ小枝ニ生ジ、單獨又ハ二三個一所ニ集リ、多少枝端ニ近ク卵形ヲナシ、枝ノ一方ノ面又ハ兩面ニ膨大シ、概々多少斜ニ着ク。 仁ハ單塊ニシテ、中軸若クハ中軸ノ枝ニ座シ、成胞絲ハ稍大ナル仁柄細胞ヲ以テ果ノ内底ニ付着シ、複總狀ニ分岐セル胞子絲ヲ發出シ、其頂端ノ細胞變ジテ棍棒狀又ハ倒卵形ノ果胞子ヲナス；胞子絲ハ密ニ束集シ鈍圓ノ塊狀ヲナス；而シテ胎座ハ小ニシテ仁柄細胞ノ下ニ位シ、此部ヨリ果皮ノ頂端ニ開口セル果孔ノ方ニ絲狀組織ヲ存ス；此組織ハ多少網狀ニ結合シテ果皮ノ内層ヲ構成シ以テ仁ノ周圍ヲ被包ス。 果皮ノ外層ハ體ノ皮層ヨリ成リ、大ナル果孔ヲ開ク。

多クハ「オーストラリア」ノ沿岸ニ產スルモノニシテ目今凡ソ六種アリ。 本邦ニハ只下ノ一種アルノミ。 屬ノ名ハ佛匠ノ博物學者 Delise 氏ノ名譽ノ爲ニ設ケタルナリ。

Delisea japonica Okam. 新 種.

たまいいたゝき 岡村稱

第 XXIX 圖版.

性質： 體ハ叢生シ線狀ニシテ扁平、細キ中肋ヲ存シ、複羽狀ニ分枝シ、櫛齒狀ニ列スル細キ三角形ノ尖銳ナル齒狀片ヲ互生ス；齒狀片ハ廣開シ枝ノ幅ヨリハ少シク長シ。——四分胞子囊ハ詳ナラズ。 囊果ハ無柄ニシテ小枝ノ頂端下ノ中肋ノ上ニ座シ、中肋ニ對シテ斜ニ一方ノ側ニ向キ、其縱ノ軸ハ囊果ノ下部ノ中肋ト廣キ鈍角ヲナシ、小枝ノ頂部ト略ボ直角ヲナ

產地：低潮線附近ノ岩石ニ生ズ。九州ヨリ上總ニ至ル
太平洋沿岸ニ普通ナリ。囊果：—夏季。

記載：根ハ廣キ圓盤狀ナリ。體ハ密ニ叢生シ、高サ 20-25
cm. アリ。体ノ下部ハ始メハ扁平ナレドモ、老成スルニ至レ
バ小距離ノ間漸ク太クナリテ莖トナリ。莖ハ略ボ圓柱狀ニシ
テ兩緣ニ齒狀片ノ殘片ヲ存スルモノアリ。莖ハ漸次上部ニ
扁クシテ細長キ線狀ノ主枝トナリ。主枝ハ單條又ハ稍分叉シ、
中肋ヲ有シ、4-5回複羽狀ヲナス。枝ハ總テ中肋ヲ有シ兩緣
ヨリ互生ス、然レドモ枝態ハ甚不同ニシテ長端往々錯雜ス。枝
ハ幅約 2 mm. ニシテ基部ノ方ニ僅ニ細シ。枝ノ兩緣ハ齒狀
片ヲ存シ、齒狀片ハ櫛齒狀ニ並ビ、互生ニシテ細キ三角形ヲナ
シ、尖短ニシテ廣開ス；其長サハ其部ノ枝ノ幅ヨリモ稍長シ。
枝ノ上部ニアル齒狀片ハ其下部ニアルモノヨリ長ク且ツ其ヨ
リモ多ク彎曲ス、殊ニ幼キ枝上ノモノニ於テ然リトス。中肋
部ノ皮層ハ膜狀部ノモノヨリ稍厚シ。

囊果ハ中肋ノ上ニ座シ、枝端ノ直下ニアリ、而シテ囊果ヲ
有スル小枝ノ頂端ハ囊果ノ縱ノ軸ト反對ノ方向ニ屈曲ス。囊
果ノ縱ノ軸ハ其ヨリ下部ニ在ル中肋ノ方向トハ一致セズシテ、
之ト凡ソ百三十五度ノ角度ヲナシ、一方ヘ屈曲シタル中肋ノ
上部ハ囊果ノ縱ノ軸ト凡ソ直角ニ交ル。果口ハ上方ニ向カ
ズシテ中肋ニ對シテ斜ニ向キ、小枝ノ面ヨリ少シク高クナリ
テ開口ス。果皮ノ内層ハ仁ヲ包ミ、絲狀ノ細胞稍網狀ヲナシ
テ果口ノ方ニ集リ走ルモノヨリナル。仁ハ單塊ニシテ、胞子
絲ハ可ナリ大ナル仁柄細胞ヨリ束狀ニ出ヅ。

本種ハ *Delisea pulchra* Mont. ニ酷似セルヲ以テ予ハ予ノ日本
海藻標品等一帙 19 號ニ其名ニテ發行シタリ；然レドモ本種ハ
夫トハ異リテ、体质薄ク中肋細ク、殊ニ囊果ノ位置ニ於テ重要
ナル差アルヲ見ル。D. pulchra ニテハ Harvey 氏ガ Phyc. Austr.

PL. XVI = 圖說シタル如ク、囊果ハ其果口ヲ上方ニ向ケテ開キ、其縦ノ軸ハ中肋ト一致ス；然レドモ此等ノ事ハ本植物ニハ到底見ル能ハザル處ナリ。此囊果ノ位置ノ異ナル性質ニ依リテ、予ハ本種ヲ *D. pulchra* ヨリ分ツヲ正當ナリト思惟ス。然レドモ、本種ハ其種ト極メテ親密ノ類縁ヲ有スル事ハ明ニシテ或ハ其變種ナルカノ疑ナキニ非ズ。和名ハ枝ノ頂端ニ囊果ヲ戴クニ因レリ。

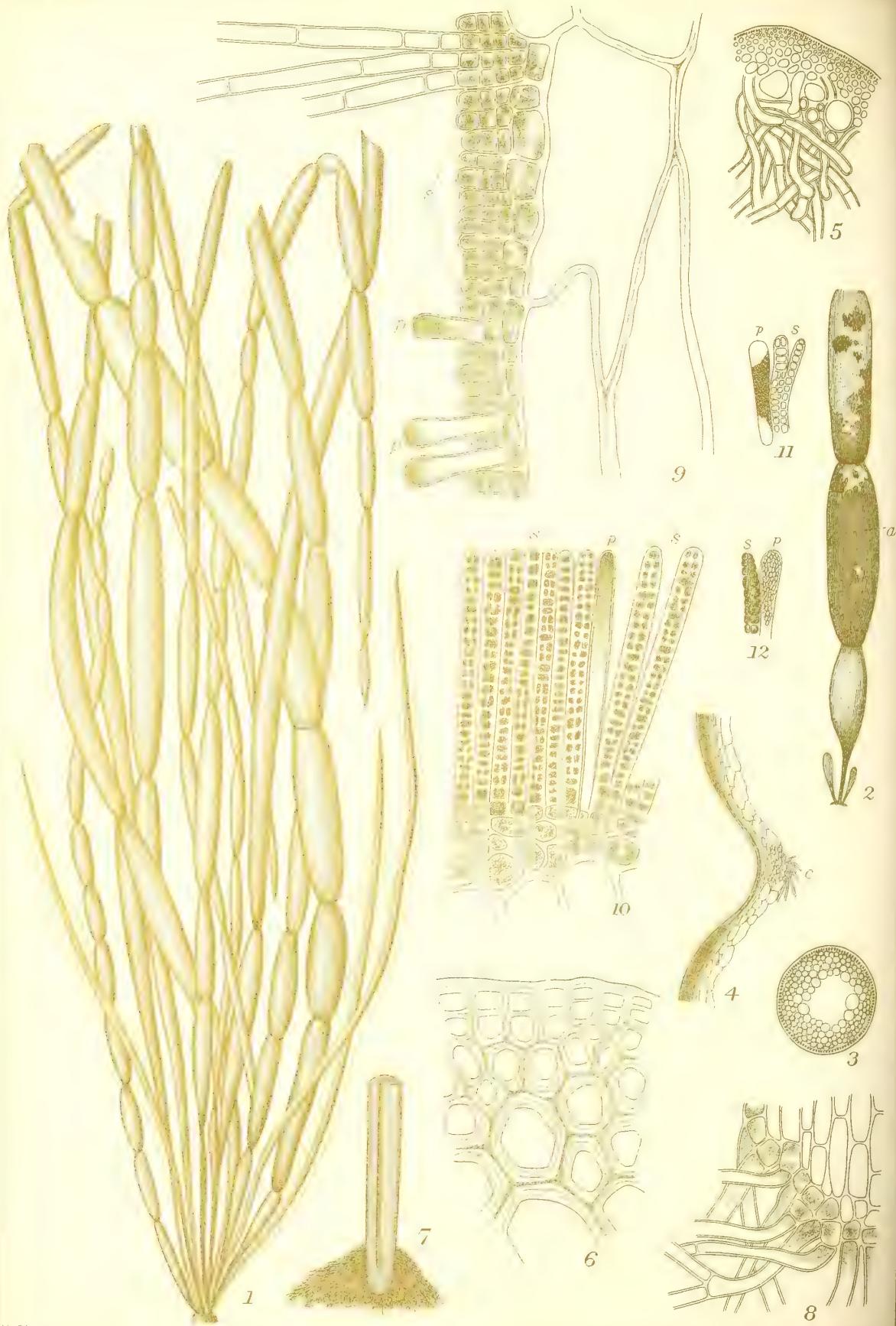
第XXIX圖版。1：たまいたゝきノ囊果ヲ有スルモノ、自然大。—2：莖ノ横斷面、 $\frac{22}{1}$ 。—3：体ノ縦断面ノ一部；a，中肋； $\frac{85}{1}$ 。—4：体ノ横断面ノ半分、 $\frac{85}{1}$ 。—5：体ノ下部ノ横断面ノ一部ニシテ中肋上ノ皮層ヲ示ス、 $\frac{390}{1}$ 。—6：体ノ上部ノ横断面ノ一部ニシテ同ジク中肋上ノ皮層ヲ示ス、 $\frac{390}{1}$ 。—7：囊果ヲ有スル枝、 $\frac{5}{1}$ 。—8：同上、廓大。—9：第8圖ニ示シタル如ク ab の面ニ沿フテ断リタル囊果ノ縦断面；圖ノ右側ハ囊果ノ下側面ナリ；a，中軸；c，仁柄細胞、 $\frac{52}{1}$ 。—10：仁柄細胞、c、ヨリ束状ニ胞子絲ノ出ル狀、 $\frac{390}{1}$ 。

***Scy whole siphon lomentarius* (Lyngb.) J. Ag.**

Nom. Jap.: *Kayamo-nori*.

PL. XXX.

Scy whole siphon lomentarius (Lyngb.) J. Ag. Sp. Alg. I, p. 126; Hauck Meeresalg. p. 396, f. 169; Ardiss. Phyc. Medit. II, p. 117; De Toni Syll. Alg. III. P. 485; Okam. Jap. Exsic. (岡村、日本海藻標品) Fasc II, no. 85; 岡村、日本藻類名彙 p. 118.—*Chorda lomentarius* Lyngb. Hydrophyt. Dan. p. 74, t. 18; Harv. Phyc. Brit. tab. 285.—*Chorda Filum* var. *lomentaria* Kuetz. Sp. Alg. p. 548; Id. Tab. Phyc. VIII, t. 14 c, c'.—*Chorda Filum* var. *fistulosa* Kuetz. Sp. Alg. p. 548; Id. Tab. Phyc. VIII, t. 14 d-e, t. 15 d-e.



K. Okam. del.

Scytoniphon lomentarius (Lyngb.) J. Ag. かやものり.

Hab.: On rocks near high-tide in calm places, also in tide-pools. Common along both coasts of the country from Ryūkyū to Shimushu Island. Sori :—late autumn to winter.

PL. XXX. Fig. 1: fronds of *Scytosiphon lomentarius* in nat. state and size; three of them very young.—Fig. 2 portion of frond with fully grown sori, α , $\frac{1}{1}$.—Fig. 3: cross-section of frond, $\frac{54}{1}$.—Fig. 4: portion of longitudinal section of frond cut through the joint, where filamentous cells are emitted into the cavity of siphon, $\frac{54}{1}$.—Fig. 5: cross-section of joint-like portion of frond showing filamentous cells; $\frac{220}{1}$.—Fig. 6: cross-section of lower portion of frond with thickened walls of cortical cells, $\frac{600}{1}$.—Fig. 7: longitudinal section of basal portion of frond showing root-fibres, $\frac{1}{1}$.—Fig. 8: root-fibres emitted from the epidermal cells of frond, $\frac{340}{1}$.—Fig. 9: longitudinal section of frond through a young sorus; s , young gametangia; p , p , paraphyses; $\frac{600}{1}$.—Fig. 10: fully grown gametangia, s , s , and paraphyses, p ; $\frac{600}{1}$.—Fig. 11-12: gametangia, s , and paraphyses, p ; paraphyses of fig. 12 has granular contents, $\frac{350}{1}$.

Scytosiphon (Lyngb.) J. Ag.

かやものり属

SCYTOSIPHONEAE (ENCOELIACEAE).

かやものり亞科 (ふくろのり科)

體ハ圓柱狀、單條ニシテ中空、二層ヨリ成ル；內層ハ大ナル圓柱狀細胞ニシテ皮層細胞ハ圓形—多角形ナリ。體ノ成長ハ體ノ下部ノ細胞ノ介生的分裂ニヨリテ成ル。複子囊ハ稍圓柱狀ニシテ群生シ、或ハ濶キ面ヲ蔽ヒテ生ジ、或ハ班點狀ヲナシ、皮層細胞ヨリ生ズ、圓柱狀ニシテ一縱列ノ室ヨリナル；「バラフシス」ハ之ヲ存シ或ハ欠ク。

二(或ハ三)種アリテ、此處ニ記スモノハ地球上殆ド產セザ

ル所ナキ程廣ク散布スル種ナリ。屬ノ名ハ Scy whole (革) ト Siphon (管) トヨリ成ル; 即チ體ノ形質ニ取レルナリ。

Scy whole lomentarius (Lyngb.) J. Ag.

かやものり。

第 XXX 圖版。

體ハ圓柱狀又ハ腸狀ニシテ、概々少距離ニ縫レテ關節ノ如キ狀ヲナシ、節ト節トノ間ハ膨ル、長サ 15-30 cm. (時ニ 60 cm. ニ達ス)、徑 5-10 mm. アリ。幼者ハ體ノ全面ニ無色ノ毛葺ヲ被ムレドモ後脱落ス。體ノ下部ハ細クシテ褐色毛狀ノ根毛ヲ以テ立ツ。子囊ハ「バラフシス」ト混在ス。質革質ニシテ乾燥スル時ハ紙ニ付着セズ。色綠褐色ヨリ黃褐乃至暗褐色ヲナス。

產地：稍靜ナル處ノ高潮線付近ノ岩石ニ簇生シ又潮溜ニアリ；古守ヨリ琉球ニ至ル迄兩沿岸トモ隨所ニ產ス。子囊：一晚秋—冬季。

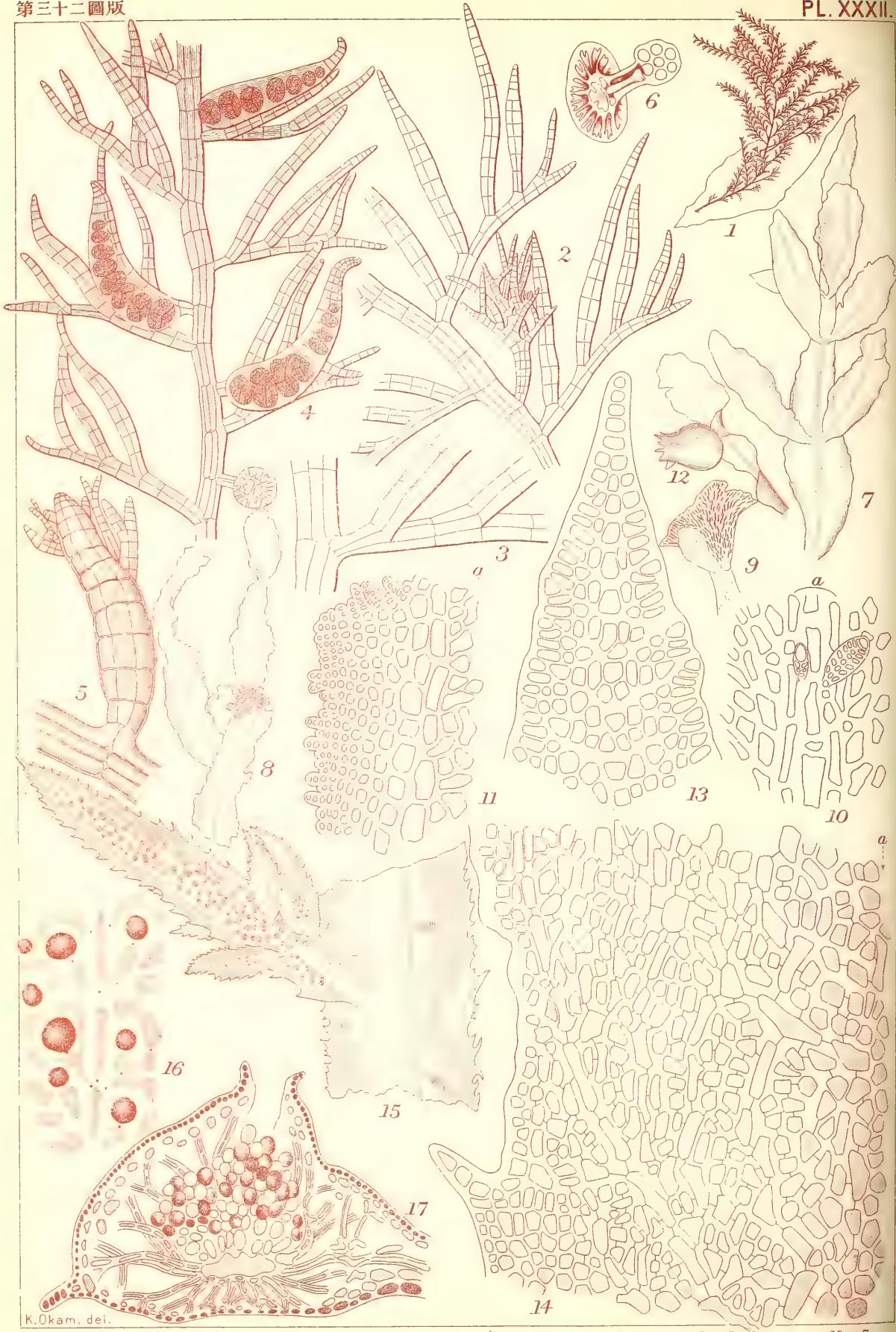
分布：寒帶ヨリ熱帶迄アリ。

第 XXX 圖版。1：かやものりノ自然ノ狀態；三個ノ體ハ最モ幼シ， $\frac{1}{2}$ -2：子囊群， a ヲ有スル體ノ一部， $\frac{1}{2}$ -3：體ノ横斷面， $\frac{5}{1}$ -4：縫レタル部分ヲ通シテ切リタル體ノ縦斷面ニシテ其部ヨリハ體ノ内部ニ絲狀細胞ヲ發出ス， $\frac{5}{1}$ -5：縫レタル部分ノ横斷面ニシテ絲狀細胞ヲ出ス狀， $\frac{220}{1}$ -6：體ノ下部ノ横斷面ニシテ皮層細胞ノ膜ノ厚キヲ示ス， $\frac{600}{1}$ -7：體ノ下部ヲ縦斷シテ毛狀根ヲ示ス， $\frac{1}{2}$ -8：體ノ表皮細胞ヨリ毛狀根ヲ生ズル狀， $\frac{340}{1}$ -9：幼キ子囊ヲ通シテ切リタル縦斷面；s；幼キ「ガメート」囊；p, p, 「バラフシス」； $\frac{600}{1}$ -10：充分成熟セル「ガメート」囊，s, s, ト「バラフシス」，p, トヲ示ス， $\frac{600}{1}$ -11-12：「ガメート」囊，s, ト「バラフシス」，p；12 圖ノ「バラフシス」ハ粒狀ノ內容物ヲ藏ス， $\frac{350}{1}$ 。



K. Okam. del.

Apoglossum violaceum (Harv.) J. Ag. ぬめはのり Figs. 1-8.



Euzoniella flaccida (Harv.) Fkbg. くしのは. Figs. 1-6.

Hypoglossum geminatum Okam. sp. nov. べねばのり. Figs. 7-12.

Apoglossum violaceum (Harv.) J. Ag. むめはのり Figs. 13-17.

Apoglossum violaceum (Harv.) J. Ag.

Nom. Jap.: *Numeha-nori*.

PL. XXXI, Fig. 1-8; PL. XXXII, Fig. 13-17.

Apoglossum violaceum J. Ag. Sp. III. 3 (1893) (*Nomen*); De Toni Syll. Alg. IV, p. 700; 岡村, 日本藻類名彙, p. 50.—*Delesseria violacea* J. Ag. Epicr. p. 492; De Toni Phyc. Jap. nov. p. 29.—*Delesseria serrulata* Harv. in Perry Exp. to Jap., Bot., Append. p. 331; Kuetz. Tab. Phyc. XIX, t. 12, f. a-b.

Plant furnished with a simple primary percurrent frond standing from an expanded disc, midribed and broadly winged, the lower portion altered into a thick subcylindrical stem (2-3 mm. in diam.) for a shorter or longer extent by denudation of the wings. It attains usually a height of 30 cm. or more. Ramification 3-4 times alternately pinnate by repeated proliferations from both sides of the midrib on both surfaces, and some of them elongate into main branches. Branches are often excessively produced. Branches of every order linear-lanceolate tapering into a fine point from narrowed base and furnished with a thick prominent midrib which is thickly corticated. Membranes are very thin and delicate, traversed by reticulated veinlets with undulato-serrulated or irregularly denticulated margins, and those on lower portion of frond furnished with minute prickle-like branched processes on both surfaces. They are often broader than 10 mm. at the primary frond, gradually becoming narrower above.

Sori are linear, being produced along the thickened median portion of ultimate and penultimate proliferations which are transformed into leaflets like sporophylls; they are not produced by confluence of those formed along both sides of the midrib. Sporangia are transformed from a cell produced as a branch of an infra-cortical cell which is derived

from the joint of the midrib of a sporophyll. *Cystocarp* low conical and shortly beaked, settled on the midrib of an ultimate leaflet. Colour dark-purplish red when recent, becoming beautiful red in drying. Substance soft and membranaceous except thickened midrib, and the plant firmly adheres to paper in drying.

Hab.: On rocks and stones between tide-marks in calm places. Iwanai and Shiwoya (Prov. Shiribeshi), Kamoito (Prov. Teshiwo), Hakodate (Prov. Oshima) in Hokkaido; Cape Iwai-zaki and Yonezaki (Prov. Rikuzen). Fruits: April-May.

PL. XXXI, Fig. 1-8. Fig. 1: *Apoglossum violaceum* J. Ag. in nat. size.—Fig. 2: surface of the membrane showing the course of veinlets, $\frac{22}{1}$.—Fig. 3: portion of the membrane of the lower part of frond showing prickle-like processes on both surfaces, $\frac{54}{1}$.—Fig. 4: longitudinal section of a leaflet, $\frac{220}{1}$.—Fig. 5: cross-section of midrib and membrane, $\frac{91}{1}$.—Fig. 6: cross-section of a sorus, $\frac{91}{1}$.—Fig. 7: cystocarps, $\frac{22}{1}$.—Fig. 8: vertical-section of a cystocarp cut perpendicular to the plane of sporophyll, $\frac{91}{1}$.

PL. XXXII, Fig. 13-17. Fig. 13: surface-view of the terminal portion of a very young leaflet showing arrangement of cells, $\frac{340}{1}$.—Fig. 14: portion of the surface-view of membrane showing veinlets and cellules; α indicates the position of the midrib, $\frac{220}{1}$.—Fig. 15: surface-view of tetrasporic sporophylls, ca. $\frac{16}{1}$.—Fig. 16: arrangement of tetrasporangia seen through the cortical layer of sorus, $\frac{220}{1}$.—Fig. 17: vertical section of a cystocarp cut along the midrib of sprophyll, $\frac{91}{1}$.

Apoglossum J. Agardh 1876.

ぬめはのり属.

DELESSERIEAE (DELESSERIACEAE).

このはのり亞科(このはのり科).

體ハ扁平, 薄キ膜狀ニシテ中肋ヲ存シ, 中肋ヨリ副出スル枝ニ依テ分枝スルモノニシテ, 其他ニハ枝ヲ分ツコトナク, 顯微鏡的ノ細脈ヲ中肋ヨリ斜ニ横ニ發出シ, 其中間ニ存スル細胞ハ一定ノ順序ナク排列ス(中肋ヨリ正シク扇狀放射狀ニ發出スル如キ排列  ナスコトアラズ). 成長點細胞ハ横ニ關節シテ明ナリ, 而シテ成長點以下ノ細胞ハ漸次左右ニ分裂シテ規則正シク排列シ, 其部ノ中肋ノ細胞ノ長サト同様ノ幅ニテ横ニ關節ス; 中肋ハ後漸次皮層ヲ以テ蔽ハル.—四分胞子群ハ或ハ小葉ノ中肋ノ兩側ニ生ジテ互ニ並行セル長キ線狀ノ群ヲナシ, 或ハ特ニ變形セサル葉又ハ特ニ變形セル成實葉ノ全面ニ生ズルコトアリ; 胞子ハ三角錐狀ニ分裂ス. 胎原列ハ, 概ネ, 中肋ノ細胞ニ生ジテ散在ス. 囊果ハ概ネ副出セル小サキ成實葉ニ限ラレテ生ジ, 外面ニ(多クハ兩面ニ)隆起シ, 中肋ノ上ニ坐ス; 胎座ハ多クハ僅ニ形成セラレ, 時トシテハ單條又ハ僅ニ分岐セル絲狀細胞ヲ以テ胎座ト果皮トヲ結ビ付ク; 成胞絲ハ多少弯狀ニ隆起ス; 胞子ヲ成熟スル絲ハ同時ニ形成セラレ, 緩ク分岐シ或ハ同時ニ胞子ヲ形成シ, 數個ノ成胞裂片即チ小仁ニ分レ, 小仁ハ密ニ團集ス; 胞子ハ成胞絲ノ各細胞ヨリ悉ク形成セラレ不規則ニ團集ス.

本屬ハ元ト Delesseria 屬中ニ含マレタル種類ヨリ別ニ設置セラレタルモノニシテ, 其之ト異ナル點ハ特別ノ小葉ニ四分胞子ヲ有スルコトニ於テ存ス, 而シテ多少明ニ微細ナル細脈

ヲ有スルコトト、中肋ヨリ副出スル枝ニテ分岐スルコトトヲ以テ本屬ノ著シキ性質トナシ以テ他ノ近縁ノ屬ト分ツ。本屬ニ屬スル種類ハ6-7種ニシテ專ラ「オーストラリア」ニ產ス;本邦ニハ下ノ一種アルノミ。

屬ノ名ハ *Apo* (無シニ) ト *glossa* (舌) トヨリ成ル。

Apoglossum violaceum (Harv.) J. Ag.

ぬめはのり 岡村稱。

第XXXI圖版, 1-8圖; 第XXXII圖版, 13-17圖。

體ハ單條ニシテ分岐セザル始原體ヲ有シ、始原體ハ中肋ヲ存シテ其兩側ニ廣キ翼狀ノ膜ヲ付ケ、下部ハ翼片ノ破損スル爲メ多少莖ノ如キ觀ヲ呈シ、莖ハ稍圓柱狀ニシテ直徑2-3 mm. ヲ有シ、扁平ニシテ開展セル盤狀根ヲ以テ立ツ; 體ノ高サ概ネ30 cm. 以上アリ。枝ハ體ノ兩面ニ於テ中肋ノ兩側ヨリ三四回副出シテ以テ羽狀ニ互生シ、枝ノ或モノハ甚シク伸ビテ數條ノ主枝トナル; 而シテ往々甚シク多數ニ枝ヲ發生スルコトアリ。各部ノ枝ハ線狀披針狀ニシテ頂端ハ細クナリ基部ハ稍細リテ太ク隆起セル中肋ヲ存シ、中肋ハ厚ク皮層ヲ被ムル。膜ハ極メテ薄クシテ軟弱、網狀ニ列レル細脈ヲ存シ、緣邊ハ波狀ニ縮皺シ、細鋸齒ヲ存シ或ハ不規則ナル細齒ヲ存ス、而シテ體ノ下部ナル膜ハ棘狀ニ分岐セル細小ナル突起ヲ兩面ヨリ發出ス。始原部ノ膜ハ幅往々10 mm. 以上廣キコトアリテ之ヨリ漸次上方ニ細クナルナリ。

四分胞子群ハ線狀ニシテ最末ノ副枝及其一回前ノモノノ中肋部ニ形成セラレ、其之ヲ有スル副枝ハ成實葉ノ如キ小葉ヲナス; 群ハ中肋ノ兩側ニ形成セラレタル班ノ相癒合シテ成レルモノニハアラズ。四分胞子囊ハ成實葉ノ中肋ヲ成セル細胞ト連絡セル皮下細胞ノ枝トシテ生ゼラレタル細胞ヨリ變成ス。囊果ハ低

キ圓錐形ニシテ短嘴ヲ戴キ小葉ノ中肋上ニ坐ス。色ハ新鮮ノ時ハ暗紫紅色ニシテ、乾燥スル時ハ美シキ紅色ヲナス。質ハ太キ中肋ノ外ハ軟クシテ膜質、乾燥スル時ハ密ニ紙ニ付着ス。

產地：靜ナル場所ノ潮線間ニアル岩石ノ上ニアリ。後志國岩内及ビ鹽谷、天鹽國カモイト、函館；陸前岩井岬、米崎。果實：一四五月。

第XXXI圖版、1-8圖。1: *Apoglossum violaceum* J. Ag. ノ自然大
—2:膜ノ表面ニ細脈ノ走レル狀ヲ示ス, $\frac{22}{1}$.—3:體ノ下部ノ膜ノ一部ニシテ、兩面ヨリ棘狀突起ヲ生ズル狀, $\frac{54}{1}$.—4:小枝ノ縱斷面, $\frac{220}{1}$.—5:中肋ト膜トヲ横斷シタルモノ, $\frac{91}{1}$.—6:四分胞子群ノ橫斷面, $\frac{91}{1}$.—7:囊果, $\frac{22}{1}$.—8:成實葉ノ面ニ直角ニ切リタル囊果ノ縱斷面, $\frac{91}{1}$.

第XXXII圖版、13-17圖。13:極メテ幼キ小葉ノ頂部ノ表面ニ於ケル細胞排置ノ狀ヲ示ス, $\frac{340}{1}$.—14:膜ノ表面ノ一部ニシテ細脈ト中間ノ細胞トノ排列ヲ示ス; a, 中肋ノ位置, $\frac{220}{1}$.—15:成實葉、約 $\frac{16}{1}$.—16:四分胞子群ノ皮層ヲ透シテ見タルモノニシテ、四分胞子囊ガ中肋ノ一細胞ニ連ナレル細胞ノ枝トシテ成レルモノヨリ生ズル狀ヲ示ス, $\frac{220}{1}$.—17:成實葉ノ中肋ニ沿ヒテ断リタル囊果ノ縱斷面, $\frac{91}{1}$.

Euzoniella flaccida (Harv.) Fkbg.

Nom. Jap.: *Kushi-no-ha*.

PL. XXXII, Fig. 1-6.

Euzoniella flaccida (Harv.) Fkbg. Rhodom. (1901) p. 365, t. 5, f. 10; De Toni Syll. Alg. IV, p. 1029; 岡村、日本藻類名彙, p. 69.—*Polyzonia flaccida* Harv. Phyc. Austr. tab. XLII B; J. Ag. Sp. Alg. II, 3, p. 1165 J. Ag. Florid. Morph. t. XXXII, f. 24.

Hab.: On other algae between tide marks. Prov. Noto; Cape Nomo in Prov. Hizen; Shinhama (Prov. Iyo).

Pl. XXXII, Fig. 1-6. Fig. 1: *Euzoniella flaccida* Fkbg. growing on another alga, ca. $\frac{2}{1}$.—Fig. 2: portion of a frond showing the arrangement of "Kurz—" and "Lang-trieb," $\frac{42}{1}$.—Fig. 3: piece of a "Kurztrieb" showing the insertion of lacineae, $\frac{91}{1}$.—Fig. 4: portion of a frond bearing stichidia, $\frac{42}{1}$.—Fig. 5: stichidium viewed from the ventral side, $\frac{91}{1}$.—Fig. 6: scutate disc, $\frac{91}{1}$.

Annexed woodcuts on p. 154: Fig. 1: "Kurztrieb" viewed from the dorsal side, $\frac{91}{1}$.—Fig. 2: the same viewed from its lower edge, $\frac{91}{1}$.—Fig. 3: cross section of the same; a, a, marginal cells of the "Kurtztrieb"; b, b, median cells of the same, $\frac{220}{1}$.—Fig. 4: stichidium viewed from the dorsal side, $\frac{91}{1}$.

Euzoniella Falkenberg 1901.

くしのは属。

POLYZONIEAE (RHODOMELACEAE).

くしのは亚科, ふぢまつも科.

體ハ匍匐シ, 吸盤狀付着器ヲ以テ他物ニ固着シ, 或ハ匍匐スル軸ヨリ直立スル部分ヲ有スルモアリテ多クハ多少扁平ナリ。充分ニ形成セラレタル多管軸ハ概ネ六條乃至其以上ノ周心細胞ヲ有シ, 終生皮層細胞ヲ被ムルコトナシ。體ハ總テ腹背ノ性質ヲ存シ, 長條ト短條トニ分化シ, 短條ハ多少葉狀ニシテ, 長條ハ葉狀ノ短條ヲ付ク。長條ハ眞直ナル若クハ背面ノ方ニ曲レル頂端ヲ以テ伸長シ, 其兩緣ヨリ葉狀ノ短條枝ヲ互生ス。短條枝ハ各二關節宛ヲ距テテ出デ外長性ナリ; 即チ其發生スルニ當リテハ, 中軸細胞ヨリ周心細胞ヲ分裂セザル前ニ於テ生ゼラレタルモノトス。而シテ, 短條枝ヲ有セザル關

節ノ縁邊ヨリハ早晚長條ヲ生ズ、此長條ハ内長性ナリ；即チ既ニ周心細胞ノ出來上リタル後中軸ヨリ内長的ニ生ズルモノトス。短條枝ハ葉狀ニ形成セラレ、體ノ頂端ノ方ニ向テ多少多ク枝ヲ出シタル葉片ヲナスヲ以テ、短條ノ腹背兩面ハ均齊ニ分枝セザルガ故ニ不平均ナリ、而シテ其一方ノ面ニ向テ出タル枝ハ各相離レテ存スルカ又ハ互ニ相癒着シテ葉狀ヲナス。——四分胞子囊ハ長條ノ一部「スティキジア」状ニ變形シタルモノ若クハ特ニ此目的ノ爲ニ變ジタル小サキ長條ニ生ズ、此長條ハ枝ヲ有スルコト稀ナラズ。「スティキジア」ハ斯ノ如クシテ長條ノ上部ヲ占ムルカ或ハ短條ノ上ニテ恰モ短條ノ腋ヨリスルガ如ク生ジ、其兩縁ニ多少簡單ニナリタル枝ヲ存シ、背部ハ増厚シ、此處ニ其中央線ニ沿フテ四分胞子囊ノ一縱列ヲ生ズ；四分胞子ノ熟スルトキハ甚シク膨大シ、外面ハ不規則ニ排列セル數多ノ細胞ニテ全ク被蔽セラル。精子器ハ短柄ヲ有シ、緻密ナル細胞組織ヨリ成リ、其上部ノ表面ニ小サキ細胞ヨリ成レル精子ヲ着ク、而シテ精子器ハ短條ノ最下部（即チ、軸ノ方に接近セルモノニシテ、短條ノ基部ニアルモノ）ノ枝ヨリ變形ス。胎原ハ長條ノ成長點付近ノ處ニ多數ニ形成セラレ、短條ノ最下部ノ枝ノ下カラ二番目ノ細胞ヨリ生ジ、僅ニ膨大ス；囊果ハ無柄ニシテ卵形、薄キ果皮ヲ有シ、成胞絲ハ密集シ、其頂端ニ胞子ヲ戴ク；胞子ハ卵形又ハ棍棒狀ナリ。

本屬ニ屬スル種類ハ7種ニシテ概ネ南方ノ海ニ多ク、オーストラリア、ファンディーメンスランド、ニウゼーランド、オークランド及ビカムベル島ニ産ス。模範種ハ *Euzoniella incisa* (J. Ag.) Fkbg. (= *Polyzonia incisa* J. Ag.)ニシテ現今本邦ニ知ラル種類ハ頗ル模範種ヨリ遠ザカレリ。本屬ハ從來 *Polyzonia* 屬ノ下ニ編入セラレタレドモ、Falkenberg氏之ヨリ分ケテ別ニ *Euzoniella* ノ屬ヲ設ケタリ；其之ト異ル點ハ、長條ノ周心管ノ皮層

細胞ヲ被ラザルコト, 其腹部ニ翼狀片ヲ有セザルコト, 及ビ吸盤狀付着器ノ二個細胞ヨリ成ルコト (*Polyzonia* ハ之ガ多數ノ細胞ヨリ成リテ長條ノ腹部ニ翼狀片ヲ有シ, 且皮層細胞アリ), トニ依リテ *Polyzonia* ト區別セラル.

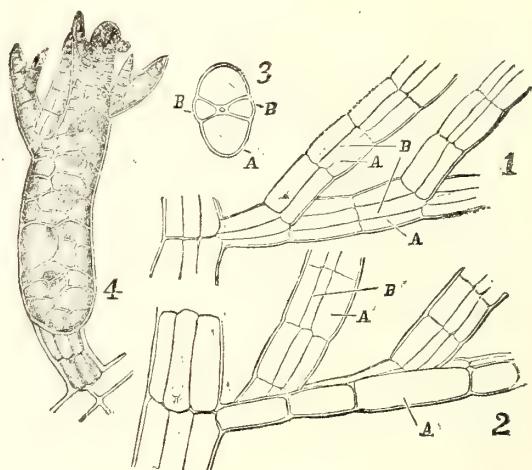
屬ノ名ハ Eu (善キ) ト Zona (横帶) トヨリ成リ, *ella* ハ小サキ意ナリ.

Euzoniella flaccida (Harv.) Fkbg.

くしのは 岡村稱.

第 XXXII 圖版, 1-6 圖.

體ハ他ノ海藻上ニ匍匐セル莖ヲ有シ, 其節々ヨリ吸盤狀付着器ヲ出シテ他體ニ固着シ, 此部ヨリ數條ノ枝ヲ生ズ; 枝ハ游離シテ 1-2 cm. 長ク, 美シク羽狀ヲナシ, 其幅約 2-3 mm. アリ. 短條ハ二細胞ヅツヲ距テテ互生シ, 殆ド直角ニ出デ, 腹面則チ付着物ノ方ニ向テ弧狀ニ反リ, 半羽狀ナリ(半羽狀トハ一條ノ軸ノ左右若クハ上下兩半ニ均シク羽狀ヲナサズシテ, 其一半ノミニ羽狀ヲナスヲ云フ), 而シテ其裏面則チ腹面ハ枝ヲ生ズルコトナク, 上面則チ背面ヨリ概ネ 5-8 條ノ小枝ヲ並ビ生ズ(之ヲ齒片ト稱ス), 其狀恰モ櫛ノ齒ヲ上ニシテ立タルガ如シ, 之ヲ葉ト稱ス. 短條ハ扁平ニシテ, 上下兩側(上トハ莖ノ頂部ニ向ヘル方ノ側ニシテ下



Euzoniella flaccida (Harv.) Fkbg.. くしのは.
第1圖: 短條枝ヲ背面ヨリ見テ, 之ト齒片トノ構造ヲ示ス, $\frac{9}{1}$.
第2圖: 短條枝ヲ其狹キ側面ヨリ見タルモノ, $\frac{9}{1}$.
第3圖: 短條枝ノ横斷面, $\frac{22}{1}$.
第4圖: スティキジアヲ其背面ヨリ見タルモノ, $\frac{9}{1}$.

トハ體ノ下部ノ方ニ向ヘルモノ) ハ各一個ノ大ナル細胞(木版圖1-3a) ヨリ成リ, 其中間ニ各一條ノ細キ細胞(木版圖1-3b) ヲ有スルコト恰モ細脈ノ如シ; 此構造ハ表裏兩面トモ同ジ而シテ先端ノ方ニ至リテハ一列ノ細胞トナル。齒片ハ短條枝ノ背面ヨリ二細胞ヅツヲ距テテ出デ, 莖ニ近キ方ノモノホド長クシテ遠キ方ノモノホド短ク, 先端皆細ク, 全ク一列ノ細胞ヨリ成ルコトアリ, 或ハ下部僅ニ少數ノ周心管ヲ以テ成ルアリ, 其構造ハ其之ヲ出セル短條ト同様ナリ; 而シテ各關節ノ長サハ其横徑ヨリ稍長クシテ節々少シクビルルコトアリ。四分胞子ヲ有スル枝ハ長條ヨリ變形シテ「スティキジア」狀ヲナシ, 此目的ノ爲ニ變形シタル長條ハ短クシテ, 短條ト同一ノ側ニ於テ其上ナル細胞ヨリ殆ド直角ニ出デ, 背面ノ方ニ反リテ腹面ニハ四形ヲナシ, 上部ノ兩緣ヨリ僅ニ短キ短條ヲ有スルモノアリ; 「スティキジア」ノ腹面ハ三個ノ細胞列(5圖)ヨリ成レドモ, 背面ハ不規則ニ並ベル數個ノ細胞ヨリ成リ(木版圖4)其部ニ四分胞子ヲ有ス。長條ノ橫斷面ハ六條ノ周心管ヨリ成リ皮層細胞ヲ被ムルコトナシ。色ハ淡紅色ニシテ膜質ナリ。

產地: 潮線間ニ在ル海藻上ニ匍匐ス。肥前野母崎, 能登。四分胞子: 夏季。

分布: ニウホルランドノ西南岸ニ產ス。

第XXXII 圖版 1-6 圖 1: *Euzoniella flaccida* (Harv.) Fkbg. ノ自然ノ狀態, 約 $\frac{2}{1}$.—2: 短條(3個)ト長條(1個)トノ排置ヲ示セル體ノ一部, $\frac{42}{1}$.—3: 短條ノ背面ヨリ齒片ノ出ル狀ヲ示ス, $\frac{91}{1}$.—4: 四分胞子托ヲ有スル體ノ一部, $\frac{42}{1}$.—5: 「スティキジア」ヲ其腹面ミリ見タルモノ, $\frac{91}{1}$.—6: 吸盤狀付着器, $\frac{91}{1}$.

Hypoglossum geminatum Okam. sp. nov.

Nom. Jap.: *Beniha-nori*.

PL. XXXII, Fig. 7-12.

Diagn.: Frond minute, repenting, slender, linear-lanceolate, with corticated midrib, veinless, repeatedly branching in geminate manner by proliferating similar segments from the midrib unifilariously. Margin entire or fimbriated in older portion. Cystocarps sessile, sitting on the midrib, urceolate with a wide ostiole.

Hab.: On the fronds of larger algae between tide-marks. Enoshima in Prov. Sagami; Misaki (Prov. Sagami, Yendo). Fruit:—Spring.

Descr.: Only a few small but fully grown specimens have been found growing on other algae. Primary frond prostrates and creeps over other algae by the formation of attachments at several places. From this there rise several branches on the upper surface of frond by proliferating linear-lanceolate segments from both sides of the midrib in geminate manner. They give rise to those of the next order in the similar way and the plant attains the length of scarcely 2 cm. Branches of every order as well as the primary frond are linear-lanceolate, about 1 mm. broad, midribed and furnished with a thin membrane which is destitute of veins; they attach themselves to substratum by disc-shaped attachments from the midrib as shown in fig.



Hypoglossum
geminatum Okam.
sp. nov., $\frac{1}{2}$.
べに(イのリ)

8 and 9, and also marginal hair-like root fibres are here and there produced. The midrib is more or less thickly corticated and opaque in lower portion of frond, while in the upper it is almost translucent though not without cortications. Margin is entire, but in older portions of frond linear transverse rows of cells near the margin elongate beyond the general outline after the

manner of minute finger-like processes. Tetraspores unknown. Cystocarps sessile on the midrib, urceolate with a wide ostiole, whose margin is slightly lobed. Colour red. Substance thin and delicate.

In external appearance and size the present plant very much resembles *Hypoglossum barbatum* Okam. (Illustr. Mar. Alg. p. 19-21, PL. VII), but the mode of ramification and corticated midrib, amongst others, separate the former from the latter. The opposite ramification of the present plant makes us to remind that of *Hypoglossum dendroides* (Harv.) J. Ag.; but the difference between the two is so much evident that no further demonstration is needed for.

Annexed wood-cut on p. 156: frond of *Hypoglossum geminatum* Okam. in nat. size.

PL. XXXII, Fig. 8-12. Fig. 7: portion of frond, $\frac{22}{1}$.—Fig. 8: portion of branch viewed from the under-surface showing a scutate disc produced from a constricted part, $\frac{18}{1}$.—Fig. 9: holdfast produced from the apex of a segment, $\frac{54}{1}$.—Fig. 10: portion of the surface of frond showing a geminate proliferation; *a*, corticated midrib; highly magd.—Fig. 11: surface-view of the membrane; *a*, cortication of the midrib; $\frac{140}{1}$.—Fig. 12: cystocarp, ca. $\frac{13}{1}$.

Hypoglossum geminatum 新種.

べにはのり 岡村稱.

第XXXII圖版, 7-12圖.

Hypoglossum 屬ノ性質ハ岡村, 日本海藻圖說第一卷第二冊第23頁ニアツ. 屬ノ名ハ Hypo(下) + glossum(舌)トヨリ成ル.

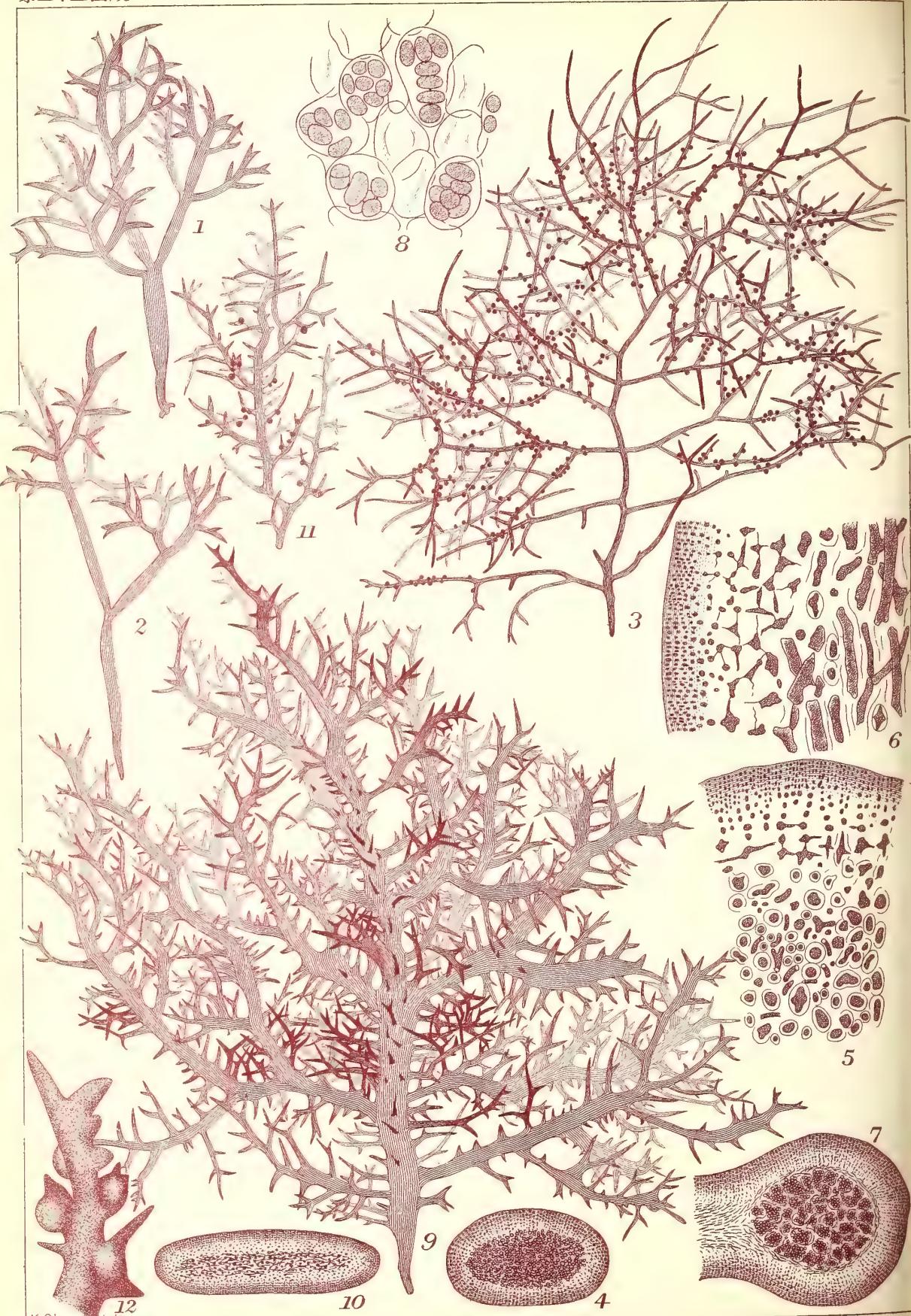
性質: 體ハ小ニシテ匍匐シ, 細ク, 線狀一披針狀ニシテ, 皮層アル中肋ヲ存シ, 細脈ナク, 體ノ一方ノ表面ヨリ中肋ノ兩側ニ於テ二條ヅツ同様ノ部分ヲ副出シ, 數回反復シテ以テ分岐ス. 緣邊ハ全緣ナレドモ, 老成部ニ於テハ恰モ總ヲ付ケタル

如キ觀ヲナス。囊果ハ無柄ニシテ中肋ノ上ニ坐シ、壺狀ニシテ廣キ口ヲ有ス。

產地：潮線間ニ生ズル稍大ナル海藻上ニ匍匐ス；相模江ノ島；三崎（遠藤）。果實：—春季。

記載：僅ニ二三ノ成熟セル小ナル體ヲ他ノ海藻上ニ發見セリ。體ハ初メ平臥シ、諸所ニ付着器ヲ形成シテ他ノ海藻上ニ匍匐ス。平臥セル部分ヨリ數條ノ枝ヲ上方ニ副出シ、更ニ又同様ノモノヲ同様ニ副出シテ分岐ス；其副出スル位置ハ中肋ノ兩側ヨリ對生スルモノトス；斯クテ體ノ長サ漸ク2cm.ヲ超ヘズ。各部ノ枝並ニ始原ノ體ハ線狀披針狀ニシテ約1mm.ノ幅ヲ有シ、中肋ヲ存シ、薄キ膜ヲ着ク、膜ニハ細脈ナシ；而シテ中肋ヨリ盤狀付着器ヲ形成シテ他物ニ固着スルコト第8-9圖ニ示スカ如ク、又緣邊ノ所々ヨリ毛狀根ヲ生ズ。中肋ハ多少厚ク皮層ヲ以テ蔽ハレ、體ノ下部ニテハ不透明ナレドモ、上部ニテハ稍半透明ナリ、然レドモ其部モ皮層ナキニアラズ。緣邊ハ全緣ナリ、然レドモ老成部ニアリテハ緣邊ニ近ク横ニ並列セル細胞列稍伸ビ出デ、以テ小サキ指狀ノ突起ヲナス。四分胞子囊ハ詳ナラズ。囊果ハ無柄ニシテ中肋ノ上ニ坐シ、廣キ口ヲ有スル壺狀ニシテ、口ノ緣邊ハ少シク裂片ヲナス。色ハ紅色ナリ。質ハ薄クシテ軟弱ナリ。

體ノ大サト其外見トヲ以テスルニ本種ハ本邦所產ノ種類中ニテハ *Hypoglossum barbatum* Okam. (ひげべにはのり、岡村、日本海藻圖說第七圖版)ニ類スレドモ、分岐ノ方法ト皮層ヲ有スル中肋トハ就中之ト區別スル要點ナリトス。本種ノ分岐ノ對生ナルハ「オーストラリア」ニ產スル *Hypoglossum dendroides* (Harv.) J. Ag. ト其相類スルコトヲ想起セシムト雖モ、二者ノ差ノ甚大ナルハ敢テ多言ヲ要セザル處ナリ。



Gigartina tenella Harv. すぎのり. Figs. 1-8.
Gigartina Teedii (Roth) Lamour. まきんのり Figs. 9-12.

第XXXII圖版, 7-12圖. 7: Hypoglossum geminatum Okam. (體形
ハ 156頁ニ木版圖ニテ示セリ)ノ體ノ一部ヲ廓大シタルモノ,
 $\frac{22}{1}$.—8:枝ノ一部ヲ裏面ヨリ見テ稍クビレタル箇所ヨリ盤狀
根ノ出ル 狀ヲ示ス, $\frac{18}{1}$.—9:枝ノ頂端ニ付着器ノ形成セラレタ
ルモノ, $\frac{54}{1}$.—10:體ノ表面ノ一部ヲ廓大シテ幼キ枝ノ双生スル
ヲ示ス; a, 皮層ヲ被レル中肋; 廓大.—11:膜ノ表面; a, 中肋ノ皮
層, $\frac{140}{1}$.—12:囊果, 約, $\frac{13}{1}$.

Gigartina tenella Harv.

Nom. Jap.: *Sugi-nori*.

PL.XXIII, Fig. 1-8.

Gigartina tenella Harv. Char. of New Algae in Proceed. Amer. Acad. IV, 1859, p. 331, n. 52; Suring. Alg. Jap. p. 29, t. XVII A; J. Ag. Epicr. p. 204 (nomen); De Toni Phyc. Jap. Nov. (1805) p. 24, n. 32; Id. Syll. Alg. IV, p. 201; Okam. Alg. Jap. Exsic. (日本海藻標品) Fasc. I, no. 9; 岡村, 日本藻類名彙 p. 48.

Fronds coespitose, rising from a knob-like disc, compressed, linear, more or less irregularly pinnate with alternate and opposite branches intermixed, often densely branched, distichous. Branches patent, tapering to sharp point, often strongly recurved. The breadth of branches much varies in different fronds according to their different habitats, ranging scarcely 1 mm. to 2-3 or even more than 5 mm. There are some broader ones which are often difficult to distinguish them from *Gigartina Teedii* and *Gig. intermedia*. Plant attains the height of 5-12 cm. Cystocarps almost sphaerical, minute, sessile and often aggregated near to each other along the sides of branches. Colour dark brownish red with bluish iridescence. Substance cartilaginous becoming rather rigid in drying.

Hab.: On rocks between tide-marks, often in tide-pools. Kikaigashima (C. Wright, Textor), Kiushiu; Provs. Tōtōmi, Shima, Idzu, Sagami, Boshyū, Hōki, Yechi-zen, Yechigo and Noto; Fusān (Corea). Cystocarps:—summar.

The present plant shows a close relationship with *Gigartina intermedia* on the one hand and *Gig. Teedii* on the other. *Gigartina acicularis* (Wulf.) Lamour. also has so strong external resemblance with the present plant that it is recorded to have been collected at Yokohama and other localities by several collectors such as Martens, Schottmueller and Kaempfer (De Toni Phyc. Jap. Nov. 1895, p. 24). It is nothing but a slenderer form of the present species, for, as far as I know, *Gig. acicularis* does not grow in this country.

PL. XXXIII, Fig. 1-8. Fig. 1-2: sterile, broader fronds of *Gigartina tenella* Harv. found in tide-pool, $\frac{1}{1}$.—Fig. 3: ordinary, slenderer fronds bearing cystocarps, $\frac{1}{1}$.—Fig. 4: cross-section of frond, $\frac{4}{1}$.—Fig. 5: portion of the same, $\frac{220}{1}$.—Fig. 6: portion of longitudinal section of frond, $\frac{175}{1}$.—Fig. 7: vertical section of a cystocarp, $\frac{42}{1}$.—Fig. 8: portion of a nucleolus, $\frac{220}{1}$.

Gigartina Stackh. 1809.

すぎのり属.

GIGARTINEAE (GIGARTINACEAE.)

すぎのり亚科(すぎのり科.)

體ハ圓柱狀, 扁圓, 扁壓又ハ葉狀ニ扁ク, 稍厚ク, 多少密ニ兩緣ヨリ, 稀ニ叉狀ニ分岐シ, 又表面ヨリ副枝ヲ生ズ, 而シテ同様ノ形セル或ハ概ネ短クナリタル成實枝ヲ兩緣若クハ表面ヨリ發シ, 成實枝ハ單條又ハ分岐ス, 體ノ構造ハ明ニ絲組織ヨリ成ル: 即チ, 縱走セル細キ絲狀細胞アリテ其處此處ニ叉狀ニ

分岐シ以テ髓層ヲナシ,此ヨリ表面ノ方ニ屢々叉状ニ分岐セル念珠状皮層絲ヲ發出ス;髓部及ビ内皮部ノ細胞ハ皆横ニ連絡點ヲ形成シテ互ニ相連ナルコト網ノ如シ。成長點ハ扇状ニ放射セル絲組織ナリ。粘質強ク軟骨様ナリ。胎原ハ皮層絲ノ基部ニ多數ニ形成セラレ,多クハ鈎状ニ屈曲セル三個細胞ヨリ成リ,其之ヲ支持スル皮層絲ノ一關節ノ甚シク肥大セルモノニ付着ス;此肥大セル細胞ハ助細胞トナル。熟シタル助細胞ハ體ノ内部ノ方ニ成胞絲ヲ發出ス;成胞絲ハ各方面ニ盛ニ分岐シ,往々周圍ノ細胞ト連絡點ヲ作リテ(或ハ癒合ニ依リテ)結ビ付キ,所々組織ノ稍弛緩シタル部分ニ向テ枝ヲ生ジ。此等ノ枝ノ末端ノ數個ノ細胞胞子ト成リ以テ小仁ヲナス。仁ハ斯クテ數多ノ小仁ヨリ成リ,小仁ハ不規則ニ錯綜セル絲組織ノ網ノ目ノ所ニ團集セル胞子ヨリ成リ,此等多數ノ小仁ノ相集リタル仁ハ又之ヲ圍繞スル絲組織ヲ存ス。囊果ハ多少半球状ニ膨起セルモノニシテ往々多數相集リ生ジ,時トシテハ壁ヲ以テ繞ラセル如クナルアリ或ハ突起ヲ戴クコトアリ。四分胞子囊ハ體ノ表面下ニ群生シ,多少外面ニ膨起シ,明ナル境界ナク團集シ,又互ニ一定ノ順序ナク,球狀ニシテ十字様ニ分裂ス。

所々ノ海ニ產スル多數(50以上)ノ種類アリ;此屬ハ種々ナル模式ヨリ成レル多數ノ種類ヲ含メルヲ以テ,充分精確ナル基礎的研究ヲナサバ,多分ハ數個ノ別々ナル屬ニ分タルルナルベシト思ハル。本邦ノ種類ハ多カラザレドモ,暖地ノ代表者ト寒地ノモノト自カラ具ハルモノアリ。

屬ノ名ハ *Gigarton* (葡萄ノ種子) = 取レリ,即チ囊果ノ形狀之ニ類スルモノアレバナリ。

Gigartina tenella Harv.

すぎのり。

第 XXXIII 圖版, 1-8 圖.

體ハ叢生シ, 瘤状根ヨリ直立シ, 扁壓, 線状, 體ノ兩緣ヨリ多少不規則ニ羽状ニ分岐シ, 互生並ニ對生ノ枝ヲ交ヘ, 往々甚シク枝ヲ分ツコトアリ. 枝ハ廣開シ, 尖銳ニ終リ, 往々甚シク反曲スルコトアリ, 枝ノ強クシテ尖銳ナルハ, すぎのりノ名アル所以ナリ. 枝ノ幅ハ產所ノ狀態ニ從テ種タニシテ, 僅ニ1 mm. ノ如キ細キモノヨリ通常2 mm. ニ達シ, 時ニハ5 mm. 以上ナルコトサヘアリ. 其幅廣キモノハ往々ニシテ *Gigartina Teedii* 及ビ *Gig. intermedia* ト區別スペカラザルガ如クナルモノアリ; 體ノ高サハ5-12 cm. ニ達ス. 囊果ハ略ボ球狀ニシテ, 小サク, 無柄ニシテ往々數個緣邊ニ相集リ生ズ. 色ハ濃キ暗紅色ニシテ瑠璃色ノ閃光ヲ有ス. 質ハ軟骨様ニシテ乾燥スルトキハ稍硬シ, 紙ニ付着セズ.

產地: 潮線間ノ岩石ニ生ジ往々潮溜リニ在リ. 鬼界島 (C. Wright, Textor), 九州, 遠江, 志摩, 伊豆, 相模, 安房, 伯耆, 越前, 越後, 能登; 釜山. 囊果: -夏季.

本種ハ一方ニハ *Gigartina intermedia* (かいのり) ト一方ニハ *Gig. Teedii* (しきんのり) トニ類ス; 又太西洋ニ產スル *Gig. acicularis* (Wulf.) Lamour. モ甚シク本種ニ類スルヲ以テ, Martens, Schottmueller 及ビ Kaempfer 氏ノ如キハ或ハ之ヲ横濱ニ, 或ハ他ノ所ニ獲タリト記セドモ, 予ノ知ル處ニテハ, 此種ハ本邦ニハ產スルコトアラズシテ, 氏等ガ取テ以テ該種ト見做シタルモノハ實ニ本種ノ細キ枝ヲ有スルモノヲ誤リタルナルベシト思考ス. 本種ハす

ぎのり又まつばのりト稱シ,糊料トシ用フ,安房,伊豆七島多ク之ヲ出ス.

第XXXIII圖版, 1-8圖. 1-2: 潮溜リニ在リタル實ナキ, 幅廣キ
Gigartina tenella, すぎのり, 1.
—3: 普通ノ細キ形セルモノ, 1.
—4: 體ノ横斷面, $\frac{42}{1}$.
—5: 同上ノ一部, $\frac{220}{1}$.
—6: 體ノ縱斷面ノ一部, $\frac{175}{1}$.
—7: 囊果ノ縱斷面, $\frac{42}{1}$.
—8: 小仁ノ一部, $\frac{220}{1}$.

Gigartina Teedii (Roth) Lamour.

Nom. Jap.: *Shikin-nori*.

PL. XXXIII, Fig. 9-12.

Gigartina Teedii (Roth) Lamour. *Essai* p. 49, t. 4, f. 11; J. Ag. Sp. Alg. II, p. 266; Id. Epicr. p. 192; Ardis. Phyc. Med. I, p. 168; Hauck Meeresalg. p. 136, f. 54; Harv. Phyc. Brit. tab. 266; De Toni Syll. Alg. IV, p. 202; Okam. Alg. Jap. Exsic. (日本海藻標品) Fasc. II, no. 57; 岡村, 日本藻類名彙, p. 26.—*Ceramium Teedii* Roth Cat. bot. III, p. 108, t. 4.—*Fucus Teedii* Turn. Hist. Fuci. t. 208.—*Chondroclonium Teedii* Kuetz. Sp. Alg. p. 740; Id. Tab. Phyc. XVII, t. 66.—*Chondrocanthus Teedii* Kuetz. Phyc. gener. p. 399.

Plants often densely tufted forming a globular mass. Fronds flat, linear, disticho-pinnate, densely branched in alternate and opposite manner, often not without dichotomous segments. Branches very patent, slightly flexuose, shorter and longer intermixed, the shorter ones appearing like marginal teeth, which soon grow up into simple or more or less decompound branches. In a robust frond the surface often is not free from proliferations which are of the shape of minute teeth. Plant attains the height of 10-15 cm. with the breadth of

frond varying from a few mm. to 4-5 mm. in the main segments, gradually becoming narrower above, and the outline of frond is broader than long. Cystocarps hemispherical, small, borne on the side or base of minute spines. Colour purple-red varying to greenish. Substance rather soft cartilaginous and the plant imperfectly adheres to paper in drying.

Hab.: On rocks between tide-marks near high-tide, often in tide-pools. Provs. Totomi and Sagami; Yokosuka (Prov. Sagami, Savatier). Cystocarp: late spring—summer.

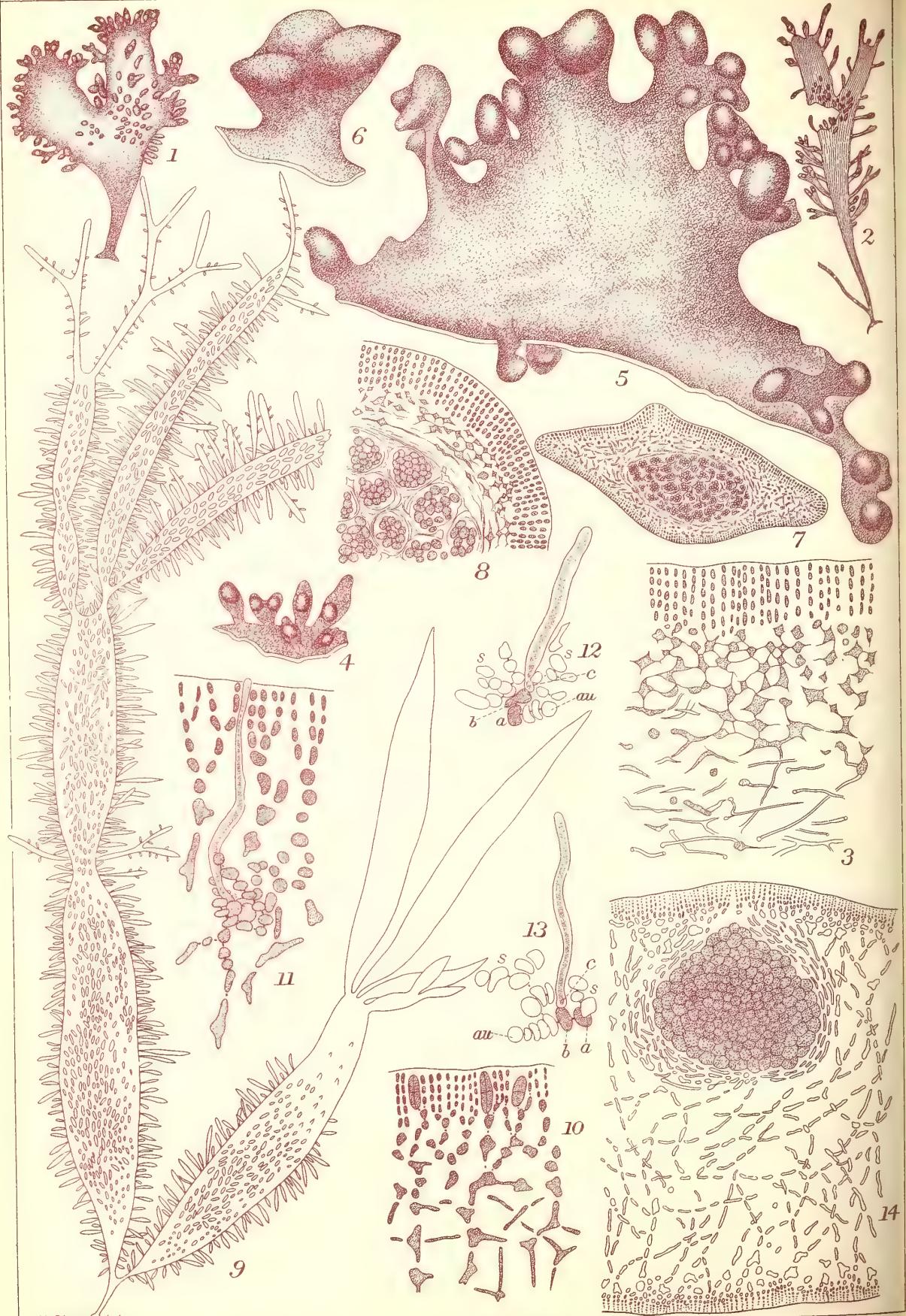
PL. XXXIII, Fig. 9-12. Fig. 9: broader form of *Gigartina Teedii* (Roth) Lamour. in nat. state and size.—Fig. 10: cross-section of branch, $\frac{22}{1}$.—Fig. 11: portion of a narrower frond bearing cystocarps, $\frac{1}{4}$.—Fig. 12: portion of the same magd., $\frac{8}{1}$.

Gigartina Teedii (Roth) Lamour.

しきんのり。

第XXXIII圖版, 9-12圖。

體ハ往々球狀塊ヲナシテ叢生シ, 扁平, 線狀ニシテ, 兩緣ヨリ羽狀ニ分岐シ, 密ニ互生並ニ對生シ, 往々叉狀ノ枝モアリ。枝ハ殆ド直角ニ出デ, 稍左右ニ屈折シ, 長短互ニ混在シ, 短キモノハ齒狀ニシテ緣邊ヨリ出デ, 後伸長シテ單條若クハ既ネ分岐セル枝トナル。強盛ナル體ニテハ表面ヨリ往々小サキ細キ齒狀ノ副枝ヲ生ズルコトアリ。體ハ 10-15 cm. ノ高サニ達シ, 枝ノ幅ハ其主ナル部分ニ於テ 1-2 mm. ヨリ 4-5 mm. ニ至リ, 漸次上方ニ細シ, 而シテ體ノ輪廓ハ高サヨリモ幅ノ方廣シ。囊果ハ半球狀ニシテ小サク, 小サキ刺ノ側部若クハ基部ニ生ズ。色ハ淡キ暗紅色ニシテ, 緑色ニ變ズ。質ハ稍軟キ軟骨質ニシテ紙ニ付着スルコト充分ナラズ。



K. Okam. del.

Gigartina pacifica Kjellm. いばのり. Figs. 1-8.
Grateloupia lancifolia (Harv.) Okam. きょうのひも Figs. 9-14.

1 9 11 46

8 13 10 12

5

7 3 24

产地：潮線間ノ岩石上ニアリテ高潮線ニ近ク生ジ，往々沙溜リニアリ。遠江及ビ相模；横須賀（相州，Savatier）。囊果：一晩春-夏季。

分布：大西洋（英國ヨリ Tingin ニ至ル沿岸）；地中海及アドリアチック海；ブルジル。

本種ハ所ニヨリ食料トスル所アリ，又糊料ニ用フ。予ハ囊キニひらすぎのりノ名ヲ命ジタレドモ，既ニしきんのりノ名アルヲ以テ今之ニ改ム。

第XXXIII圖版，9-12圖。9：*Gigartina Teedii*，しきんのり，ノ幅廣キ體， $\frac{1}{4}$ —10：枝ノ横斷面， $\frac{22}{1}$ —11：細キ體ノ一部ニ囊果ヲ有スルモノ， $\frac{1}{4}$ —12：囊果ヲ有スル枝ノ一部， $\frac{8}{1}$ 。

Gigartina pacifica Kjellm.

Nom. Jap.: *Ibonori*.

PL. XXXIV, Fig. 1-8.

Gigartina pacifica Kjellm. Om Beringhafv. Algfl. (1889), p. 31, tab. 1, fig. 21-22; De Toni Syll. Alg. IV, p. 217; 岡村，日本藻類名彙 p. 131.

Hab.: On rocks between tide-marks. Hakodate and Otaru (Hokkaido). Cystocarps:—summar.

PL. XXXIV, Fig. 1-8. Fig. 1: canaliculated fructified frond of *Gigartina pacifica* Kjellm. viewed from the convex side, $\frac{1}{4}$.—Fig. 2: another frond, in dried state, $\frac{1}{4}$.—Fig. 3: portion of the cross-section of frond, $\frac{240}{1}$.—Fig. 4: fertile papillae produced from the surface of frond, very slightly magd.—Fig. 5: marginal fructified portion, $\frac{5}{1}$.

Fig. 6: papilla bearing two cystocarps, $\frac{1}{2}$.—Fig. 7: cross-section of cystocarp, $\frac{22}{1}$.—Fig. 8: portion of the same, magd.

Gigartina pacifica Kjellm.

いばのり、岡村稱。

第XXXIV圖版, 1-8圖。

體ハ扁壓ニシテ溝狀ヲナシ, 2-多叉狀ニシテ多少幅廣キ楔形ヲナシ, 下部細クシテ莖狀ヲナス, 高サ約5-7 cm. 幅0.7-20 mm. アリ, 而シテ體ノ緣邊及表面ヨリ突起ヲ生ズ; 突起ハ扁壓, 披針狀又ハ叉狀若クハ稍掌狀ニ分レ, 其頂端下ニ囊果ヲ生ズ。囊果ハ一個又ハ數個同一ノ突起上ニ生ズ。色ハ赤黒クシテ瑠璃色ノ閃光ヲ呈ス。革質一軟骨様ニシテ乾燥スルトキハ硬クナリ, 紙ニ付着セズ。

產地: 潮線間ノ岩石上ニ生ズ。函館, 小樽。囊果:—夏季。

分布: ベーリング海。

本種ハ太西洋北部ニ普通ナル *Gigartina mamillosa* (Good. et Woodw.) J. Ag. ニ酷似シ, 往々之ト混ゼラレタレドモ, Kjellman氏ハ其溝狀ニ反ルト突起ノ頂端下ニ囊果ヲ生ズルトノ性質ニヨリテ之ヲ該種ヨリ分テリ; 蓋シ該種ニテハ囊果ハ突起ノ全部ヲ占メ, 突起即囊果ナルノ差アレバナリ。

本邦未ダ經濟上之ヲ利用スルモノアルヲ聞カズト雖モ, 其多產スルモノアラバ宜シク糊料トシテ用フベシ。

第XXXIV圖版, 1-8. 1: *Gigartina pacifica* Kjellm., いばのり, ノ囊果ヲ熟シタルモノニシテ溝狀ヲナセル體ヲ其凸面ヨリ見タルモノ, $\frac{1}{2}$.—2: 乾燥シタル他ノ標品, $\frac{1}{2}$.—3: 體ノ横斷面ノ一部, $\frac{240}{1}$ —

4:體ノ表面ヨリ實ヲ有スル突起ヲ生ジタルモノ,少シク廓大.
—5:囊果ヲ生ジタル體ノ緣邊, $\frac{5}{1}$.—6:二個ノ囊果ヲ有スル突起,
 $\frac{5}{1}$.—7:囊果ノ横斷面, $\frac{22}{1}$.—8:同上ノ一部,廓大.

Grateloupia lancifolia (Harv.) Okam.

Nom. Jap.: *Kyo-no-himo*.

PL. XXXIV, Fig. 9-14.

Grateloupia lancifolia (Harv.) Okam. Contrib. Knowl. Mar. Alg. Jap. III, p. 6 (Bot. Mag. Tokyo, Vol. XIII, 1899, no. 143, p. 7); De Toni Syll. Alg. IV, p. 1568; Okam. Alg. Jap. Exsic. (日本海藻標品) Fasc. I, no. 30; 岡村, 日本藻類名彙 p. 88.—*Gigartina lancifolia* Harv. Char. New Alg. in Proceed. Amer. Acad. Vol. IV, 1859, p. 331, no. 30; J. Ag. Epicr. p. 204 (nomen); Sur. Alg. Jap. I, p. 83, t. 9; De Toni Phyc. Jap. nov. p. 24, no. 34; Id. Syll. Alg. IV, p. 215.—*Grateloupia horrida* Okam. Contrib. Phycol. Jap. p. 1, Pl. V, fig. I-II in Bot. Mag., Tokyo, Vol. VII, 1893, No. 75.

"Root a small disc. Stem simple or sometimes branched, compressed or almost cylindrical, short, 0.5-1 cm. long, soon passing into the oval or subcuneate base of the frond. Frond tufted or solitary, flat, lanceolate, slightly thickened at the margin, 1.5-6 cm. broad, rarely simple, usually constricted at long intervals so as to form something like nodes, branches arising proliferously from the nodes or apex. Apex of frond generally dissolved into two, three or more frondlets or branches, rarely simple and subulate. Branches either simple and lanceolated or attenuated above, or ramifying dichotomously become linear. Internodes sublanceolate or almost oval in some small specimens. Smaller proliferations constricted at the base,

densely arising from the margin and surface of the frond except younger portions. They are mostly short and lanceolate; some of them at the margin become either longer and linear branching once or twice dichotomously or pinnate by lateral proliferations. Cystocarps abundant, mostly collected in the smaller proliferations. Tetraspores dispersed over the surface of the frond and in the proliferations. Color dark purplish red, changing to brownish or pale yellowish. Substance cartilaginous, and lubricous. The plant does not adhere to paper in drying except the soft younger portions free from proliferations." —Okam. Contr. Phyc. Jap. p. 1.

Fronds attain the length of 15-30 cm. some growing even to 60 cm. When young they are entirely free from proliferations.

Hab.: On rocks between tide-marks. Provs. Satsuma, Chikuzen, Totomi, Sagami, Idzumo, Noto, Yechi-go; Hakodate.

The near ally of the present species is *Gratelouphia filicina*.

PL. XXXIV, Fig. 9-14. Fig. 9: fructified frond of *Gratelouphia lancifolia* (Harv.) Okam., $\frac{1}{2}$.—Fig. 10: portion of the cross-section of frond bearing tetrasporangia, $\frac{220}{1}$.—Fig. 11: procarp *in situ*, $\frac{600}{1}$.—Fig. 12-13: procarp; a, b, c, cells of the carpogonial branch; au and ss, sterile cell branches, $\frac{600}{1}$.—Fig. 14: cystocarp, $\frac{220}{1}$,

Gratelouphia C. Ag. 1822.

むかでのり属。

GRATELOUPIACEAE. むかでのり科.

體ハ扁壓又ハ扁平ニシテ葉狀, 叉狀又ハ羽狀ニ分岐シ, 又往々枝ヲ副出シ, 稀ニ表面ヨリ分岐ス, 而シテ明ニ絲組織ヨリ成リ, 多肉ナル粘滑様軟骨質ヨリ成ル。髓部ハ細クシテ網狀ニ錯綜セル絲ヨリ成リ, 又別ニ細キ根様絲ノ之ニ付隨スルア

リ、而シテ往々稍弛緩スルコトアリ；内皮部ハ可ナリ幅廣ク、體ノ内部ノ方ニ稍弛緩シ、漸次髓層ト成リ；外皮部ハ厚クシテ屢々叉状ニ連レル念珠状絲ヨリ成リ、此絲表面ニ直角ニ立ツ。——四分胞子囊ハ體ノ表面ニ散布ス。囊果ハ體ノ上部ニ不規則ナル群ヲナシテ散在シ、小ニシテ、全ク體内ニ存ス；仁ノ周圍ヲ被包スル絲組織ハ多少充分ニ形成セラル。

囊果ノ形成セラルル方法下ノ如シ。助細胞ハ短キ關節ニテ成レル枝ニ介生的ニ生ジ、此枝ハ周圍ノモノトハ少シク特殊ナル如ク見ユルモノニシテ、其側面ニ枝ヲ分ツ；此枝ハ其側ニ生ジタル枝ト共ニ屈曲集莧シテ一個ノ卵形若クハ壠状ノ塊ヲナシ、其中心部ニ助細胞ヲ存ス。胎原列ハ短キ關節ヨリ成リテ側面ニ枝ヲ分チ、助細胞枝ノ團塊ト全ク同様ノ塊状ニ屈曲集莧シ、其中央ニ胎原列ヲ存シ、列ノ上部ニ胎心細胞ヲ戴ク。胎原列及ビ助細胞列ハ多數ニ形成セラレ、助細胞枝ハ殊ニ著シク多クシテ、實ヲ生ズベキ部分ノ皮層ノ絲ノ基部ニ形成セラル（多クハ漸々ニ形成セラルルナリ）。受胎シタル胎心細胞ヨリハ一條乃至數條ノ「オーブラステマ」絲發出シテ助細胞ニ達シ通常多數ノ助細胞ト漸次互ニ癒合ス。斯ク癒合シタル助細胞ハ體ノ内部ノ方ニ成胞絲ヲ生ジ、之ト同時ニ囊ニ助細胞枝ノ團塊ヲ圍繞シタル絲ハ各方面ニ向テ互ニ弛緩シテ以テ將來仁即チ胞子ノ團塊ヲ容ルベキ場所即チ果腔ヲ形成ス；助細胞ハ依然トシテ果腔ノ内底ニ存スルナリ。此助細胞ヨリ上方ニ一個ノ太キ突起ヲ生ズ（往々一個若クハ數個ノ周圍ノ細胞ト癒合シタル後ニ於テス）、而シテ其突起ノ上端ハ往々仁ノ中心細胞トシテ特ニ關節セラルルニ至ル；茲ニ於テ、此中心細胞即チ助細胞ノ突起ヨリ多數ノ枝ヲ束状ニ生ズ；此等ノ束状枝ハ胞子ヲ形成スルモノニシテ下部ヨリ上方ニ順次ニ形成セラレ、互ニ區別セラルベキ團塊即チ成胞裂絲

ヲ成シ、其各細胞皆悉ク胞子トナル。——囊果ハ多クハ小ニシテ皮層ノ下ニ形成セラレ、其部ノ皮層ニ一條ノ細キ孔ヲ開キテ開口シ、其部ハ少シク隆起ス；果腔ハ助細胞ノ周圍ヲ圍繞セル絲組織ヨリ形成セラレタル特殊ノ網狀ヲナセル組織ニテ被包セラル。仁ハ此果腔ノ底ニ立チ、球狀—腎臟狀ニシテ多少數塊ニ分レ、多少大ナル仁柄細胞即チ中心細胞ヲ存ス；成胞裂絲即チ小仁ハ互ニ密集ス。

諸所ノ暖キ海ニ產シ30-40種アリテ、極メテ變化シ易キ形狀ノモノ多シ。模範トスベキモノハ *Gr. filicina* (Wulfen) C. Ag. (むかでのり)ニシテ、地中海及ビ太西洋暖部ニ產シ、喜望峰ヨリ太平洋ニ至リ、本邦ニモ產ス。——本屬ハ現今數個ノ部類ニ分タルベキ種類ヲ抱括スレドモ此ハ將來ニハ多分夫タノ別屬トセラルベキナリ；尙又、本屬ハ他ノ之ニ類スル諸屬ト極メテ不充分ナル性質ニテ區別セラルヽノミ。

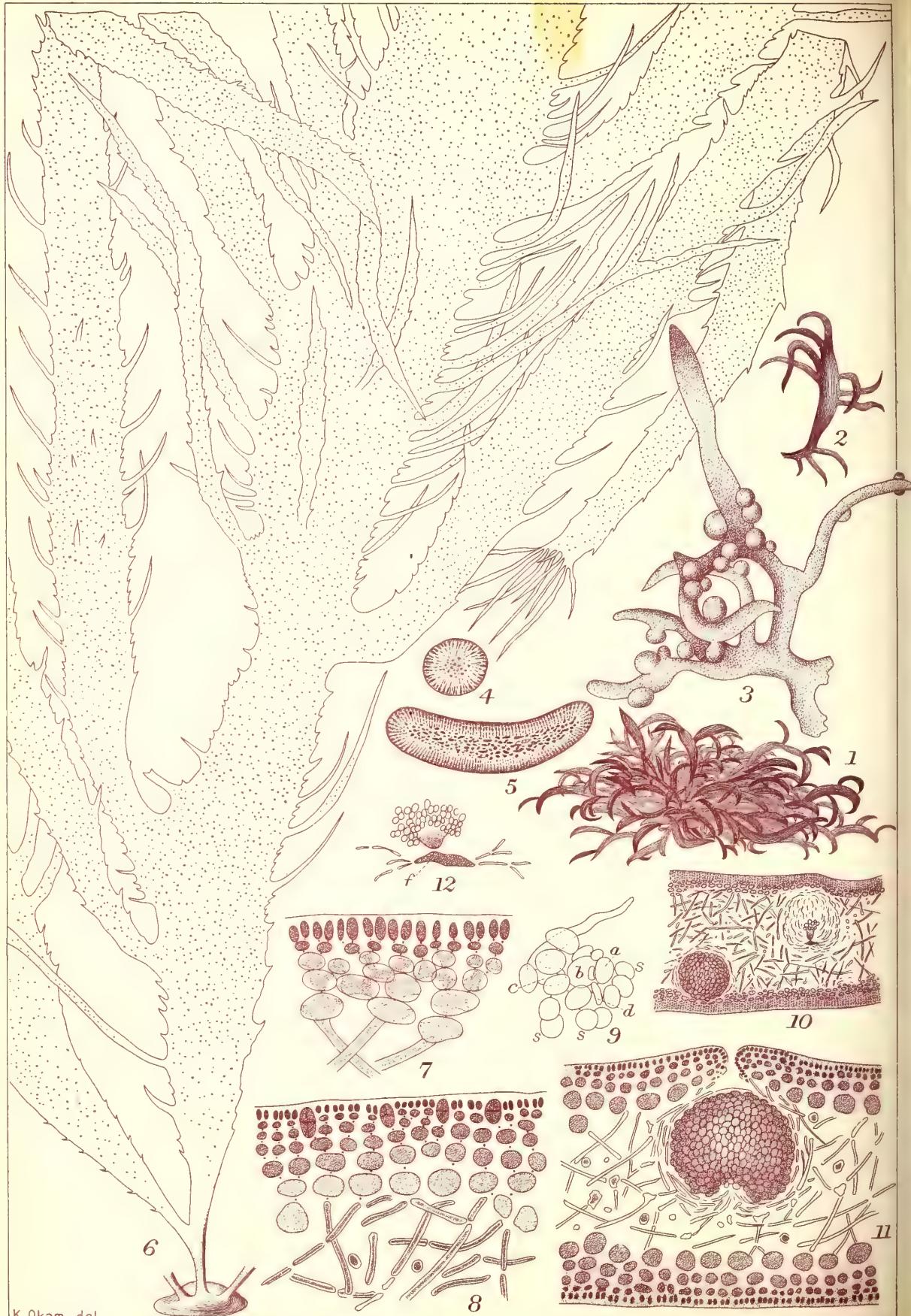
屬ノ名ハ佛國ノ海藻學者 J. P. Grateloup 氏ノ名譽ノ爲ニ設ケタルナリ。

Gratelouphia lancifolia (Harv.) Okam.

きようのひも。

第XXXIV 圖版 9-14. 圖。

根ハ小盤狀ナリ。莖ハ單條又ハ稍分岐シ、扁圓若クハ圓柱狀ニシテ、短ク、0.5-1 cm. 長ク、直ニ卵形乃至稍楔形ヲナセル體ノ基部ニ擴ガル。體ハ叢生シ或ハ孤立シ、扁平、披針狀ニシテ緣邊少シク厚ク、1.5-6 cm. 潤ク、稀ニ單條、通常長距離ニ於テ結節點トモ稱スベキクビレヲ生ジ、此クビレ若クハ體ノ頂端ヨリ數多ノ枝ヲ副出ス。體ノ頂端ハ概ネ 2-3 乃至夫以上ノ枝ニ分レ、罕ニ分レズシテ尖銳ナリ。枝ハ單條ニシテ披針



K. Okam. del.

Gigartina intermedia Sur. かいのり. Figs. 1-5.
Halymenia acuminata (Holm) J. Ag. おほむかでのり. Figs. 6-12.

狀，或ハ上部ニ細ク，或ハ叉狀ニ分岐シテ線狀ヲナス。節間部ハ稍披針狀又ハ或小サキ體ニアリテハ略ボ卵形ヲナスコトアリ。體ノ兩面及ビ緣邊ヨリ密ニ小サキ副枝ヲ生ズ；副枝ハ基部クビレ，老成セル體ノ全面ヨリ出レドモ，幼キ部分ヨリハ出デズ。副枝ハ概ネ短クシテ披針狀ナレドモ，其緣邊ヨリ出ルモノハ時トシテハ長クシテ線狀トナリ，一二回叉狀ニ分岐シ，又ハ兩側ヨリ羽狀ニ分岐ス。——囊果ハ小サキ副枝ニ多數集リ生ズ。四分胞子ハ體及ビ副枝ノ表面ニ散在ス。色ハ暗紅色ニシテ褐色又ハ淡黃褐色ニ變ズ。質軟骨様ニシテ柔滑ナリ。體ハ小副枝ナキ幼キ部分ノ外ハ紙ニ付着セズ。體ノ長サ 15-30 cm. ニシテ往々 60 cm. ニ達スルモノアリ；其幼キ時ハ全ク副枝ヲ生ゼザルモノトス。

產地：潮線間ノ岩石ニ生ズ。薩摩，筑前，遠江，相模，出雲，能登，越後，函館。果實：一夏季。

本種ハ極メテ *Grateloupia filicina*, むかでのり，ト近キ類緣ヲ有ス。本種ハ古名きやうのひもト稱シ古ヨリ食用ニ供セリ，名ハ經文ノ紐ニ類スルニテモヤアラン；ひものり，ひばのり，かはぎし，みのちのり（鹿兒島縣出品ノ標品ニ此名アリタルヨリ予ハ之ヲ採レリ），ちやちやぶり（越後），むかでな（筑前），はさつべい（山口縣）等ノ名アリ；能登，越前等ノ兒女此藻ノ軟キモノヲ取り，之ヲはさつべいト稱シ，吹キ脹ラシテ鬼灯ノ如ク鳴シ以テ娛トスト云フ。

第 XXXIV 圖版，9-14 圖。9：*Grateloupia lancifolia* (Harv.) Okam., きやうのひも，ノ果實アル體， $\frac{1}{1}$ —10：四分胞子ヲ有スル體ノ橫斷面ノ一部， $\frac{220}{1}$ —11：胎原列ヲ其位置ノマ、ニテ示シタルモノ， $\frac{600}{1}$ —12-13：胎原列；a, b, c, 胎原列ノ細胞；au, s, s, 中性細胞列， $\frac{600}{1}$ —14：囊果， $\frac{220}{1}$ 。

Gigartina intermedia Sur.

Nom. Jap.: *Kai-nori*.

PL XXXV, Fig. 1-5.

Gigartina intermedia Suring. Alg. Jap. p. 30, t. XVII, B; J. Ag. Epicr. p. 204 (nomen); De Toni Syll. Alg. IV, p. 199; Okam. Alg. Jap. Exsic. (日本海藻標品), Fasc. II, no. 58; 岡村, 日本藻類名彙, p. 26.

Fronds forming low, pulvinate, densely overlapping masses, widely stretched over rocks, firmly attaching to substratum by forming holdfasts at the places where branches come in contact with it. Branches rising from repenting segments, compressed, very irregularly branched in sub-pinnate manner with strongly recurved, patent and furrowed branches, which are often dilated into sublanceolate segments ending in a sharp point. Branches adhere to each other and to substratum by the formation of attachments. Cystocarps almost globular, sessile, often a few aggregating together along the margin of frond. Colour purplish red with bluish iridescence. Substance strongly cartilaginous, and the plant imperfectly adheres to paper in drying.

Hab.: On rocks at high tide. Provs. Tosa, Shima, Sagami, and Boshu; Hakodate. Fruits:—early summer.

Plants closely related to *Gigartina tenella* which has the structure of frond more dense than in the present species, as it is seen from the comparison of fig. 4-5 of Pl. XXXV and fig. 4-6 of Pl. XXXIII.

PL XXXV, Fig. 1-5. Fig. 1: fronds of *Gigartina intermedia* Sur. in nat. state and size.—Fig. 2: portion of frond detached, $\frac{1}{2}$.—Fig. 3: portion of frond bearing cystocarps, $\frac{3}{4}$.—Fig. 4: cross-section of lower cylindrical portion of frond, $\frac{1}{2}$.—Fig. 5: cross-section of compressed portion of frond, $\frac{1}{2}$.

Gigartina intermedia Sur.

かいのり。

第 XXXV 圖版, 1-5 圖.

體ハ低キ枕狀ニシテ密ニ重疊セル塊ヲナシ, 廣ク不規則ニ岩石上ニ蔓延シ, 地物ト接スル所ニ付着器ヲ形成シテ固ク密着ス; 而シテ匍匐スル部分ヨリ直立スル枝ハ扁壓ニシテ, 極メテ不規則ニ稍羽狀ニ分岐シ, 強ク反曲シ, 廣開シ, 溝狀ヲナス, 又往々披針狀ニ擴ガリ, 尖銳ニ終ル。枝ハ互ニ癒着シ, 又付着器ヲ作リテ地物ニ付着ス。囊果ハ略ボ球狀ニシテ, 無柄, 往々, 緣邊ニ沿フテ數個集リ生ズ。色血紅色ニシテ, 瑠璃色ノ閃光ヲ呈ス。質強キ軟骨質ニシテ乾燥スルトキハ紙ニ付着セズ。

產地: 高潮線ノ岩石上ニ生ズ。土佐, 志摩, 相模, 安房, 函館。囊果: 初夏。

本種ハ *Gigartina tenella*, すぎのり, ト最モ近キ類線ヲ有シ, 體ノ構造ハ夫ヨリモ稍緩ク構成セラル、コト第 XXXV 圖版, 4-5 圖ト第 XXXIII 圖版, 4-6 圖トヲ比較シテ知ルベシ。

本種ハ採ツテ糊料ニ用フベシ; 房州白濱邊ニテハしほくそ又ハはがちのてト稱ス; はがちトハ同地ノ方言ニ百足ヲ云フ, 即チ百足ノ釣狀ヲナセル爪ニ類スル形狀アルヲ以テナリ。

第 XXXV 圖版, 1-5 圖. 1: *Gigartina intermedia* Sur., かいのり, 自然ノ狀態, 2: 體ノ一部, 3: 囊果ヲ有スル體ノ一部, 4: 體ノ下部圓柱狀ヲナセル部分ノ横斷面, 5: 體ノ扁壓セル部分ノ横斷面。

Halymenia acuminata (Holm.) J. Ag.

Nom. Jap.: *O-mukade-nori*.

PL. XXXV, Fig. 6-12.

Halymenia acuminata (Holm.) J. Ag. Sp. Alg. Vol. III, part 4, 1901, p. 130.—*Gratelouphia acuminata* Holm. On Mar. Alg. fr. Japan, 1895 (Linn. Soc. Bot. Vol. XXXI) p. 254, t. X, f. 2a-c; De Toni Syll. Alg. IV, p. 1559; Okam. Alg. Jap. Exsic. (日本海藻標品) Fasc. I, no. 31; 岡村, 日本藻類名彙 p. 89.

Hab.: Probably in low tide. Enoshima (Prov. Sagami).

Fruits:—spring.

Plant attains the length of 45-60 cm. with the breadth of 4-6 cm. In robust forms, branches having similar shape as the remaining densely proliferate from both surfaces of the main segment. Plant firmly adheres to paper in drying.

The present plant which has been suspected by Holmes to belong to *Halymenia* from the structure of frond has been afterward considered by J. Agardh to be placed under that genus in the section *Acanthymeniae* J. Ag. l. c.

PL. XXXV, Fig. 6-12. Fig. 6: fructified frond of *Halymenia acuminata* (Holm.) J. Ag., $\frac{1}{2}$.—Fig. 7: cortical portion of frond, showing the structure, $\frac{340}{1}$.—Fig. 8: portion of the cross-section of frond bearing tetrasporangia, $\frac{240}{1}$.—Fig. 9: a, b, c, cells of procarpial branch; s, s, sterile-cell branches; d, carrying cell, $\frac{600}{1}$.—Fig. 10: cross-section of frond bearing cystocarps, $\frac{54}{1}$.—Fig. 11: cystocarp, $\frac{85}{1}$.—Fig. 12: cystocarp, $\frac{85}{1}$.—Fig. 12: central cell cut off from fused cell, f, $\frac{220}{1}$.

Halymenia (C. Agardh 1817) J. Ag. 1842.

ハリメニア属.

GRATELOUPIACEAE. むかでのり科.

體ハ圓柱狀又ハ角張リ, 扁壓又ハ葉狀ニシテ扁ク, 種々ニ
叉狀又ハ兩側ヨリ分岐シ, 一部ハ又副出シテ分岐ス; 體ノ内部
ハ多少弛緩シ, 概ネ粘質ニシテ軟ク, 絲ト細胞トニテ成ル; 體層
ハ絲狀細胞ノ網狀ヲナセルモノヨリ成リ, 細キ髓絲ヲ存シ, 同様
ノ根樣絲之ニ付隨シ, 多クハ可ナリ緩ク構成セラル; 皮層ハ
概ネ可ナリ薄ク, 外方ニハ小サキ細胞ヨリ成リテ甚ダ密ニ結合
シ, 内方ニハ稍大ナル細胞ヨリ成リテ稍緩ク, 所々ニ散布セ
ル如キ稍大ナル細胞ニ依テ髓部ト連絡ス; 此細胞ハ多少網狀
ヲナス.—四分胞子囊ハ散在シ, 皮層ノ裡ニ埋リ, 十字様ニ分
裂ス. 助細胞塊ハ皮層ノ内部ニ生ジ, 其潤キ下部ヲ以テ髓層
ニ接ス. 囊果ノ形成スル方法ハ *Gratelouphia* 屬ノ下ニ記シタル
モノニ同ジ. 囊果ハ散在シ, 可ナリ小ニシテ, 多少全ク埋在
シ, 少し髓層ニ近ク存ス. 仁ノ周圍ヲ包メル組織ハ多少明ニ
形成セラル.

約 10-20 種アリテ諸所ノ暖キ海ニ産ス. 模範トスベキ種
ハ *Halymenia floresia* (Clementi) C. Ag. ニシテ廣ク散在ス; 即チ地中
海及アドリアチツク海, 暖部太西洋, 歐, 佛, 米ノ沿岸, 紅海, ニウ
フホルランドノ沿岸等ニ産ス. 本邦ニハ專ラ臺灣, 琉球等ニ
印度洋邊ノモノヲ産ス.—本屬ニハ從來多數ノ種類アレド
モ, 極メテ僅ニ模範種ト類似スル如キモノ少ナカラズ.

屬ノ名ハ Hals 又ハ Halos, (海) ト hymen (膜) トヨリ成ル, 即チ
膜狀ノ體ニ採レルモノナリ.

Halymenia acuminata (Holm.) J. Ag.

おほむかでのり、岡村稱。

第 XXXV 圖版, 6-12 圖。

體ハ扁平葉狀ニシテ、バンド狀ヲナシ、下部楔形ニ終リ、短キ扁圓ノ莖ヲ以テ圓盤狀根ヨリ叢生シ、體ノ下部ニ於テ數個ノ主枝ニ分ル、アリ、又ハ單條ナルアリ、而シテ兩緣ヨリ廣キ線狀ノ枝ヲ生ジ、此枝又其兩緣ヨリ更ニ細小ナル枝ヲ出シ、各部ノ緣邊ハ小齒狀ヲナス；此齒狀片ハ後伸長シテ枝トナルモノナリ；斯クテ二三回羽狀ニ分歧ス；又強盛ナルモノニアリテハ主ナル部分ノ兩面ヨリ他ノ部ト同様ノ枝ヲ副出スルコトアリ；枝ハ皆上端ニ細シ。體ノ長サ 45 cm. ヨリ 60 cm. ニ達シ、幅ハ廣キ所ニテ 4-6 cm. アリ。囊果ハ小ニシテ密ニ體ノ兩面ニ散在ス。四分胞子ハ體ノ表面ニ散布シ皮層中ニアリ。色ハ紅色；質ハ膜質ニシテ柔滑、紙ニ密着ス。

產地：多分ハ低潮線付近ニ生ズルナルベシ。相州江ノ島。果實：一春季。

本種ハ元ト Holmes 氏ガ J. Agardh 氏ノ説ニ從ヒ *Grateloupia acuminata* トシタルモノナレドモ、後 J. Agardh 氏ハ其 *Halymenia* 屬スペキモノナルコトヲ論ゼリ。*Halymenia* 屬ハ皮層ノ構造 *Grateloupia* 屬ト異ニシテ、皮層ハ內部大ナル細胞ヨリ成リ、漸次外方ニ小ニシテ、密ニ結合シ、以テ薄キ外皮ヲナスニヨリテ之ト區別ス；*Grateloupia* ノモノハ小サキ念珠狀ニ連ナレル細胞ノ相集リテ絲狀ヲナセルモノヨリ成ル。

第 XXXV 圖版, 6-12 圖。6：囊果ヲ有スル *Halymenia acuminata* (Holm.) J. Ag., おほむかでのり, 7: 皮層ノ構造ヲ示セル體ノ

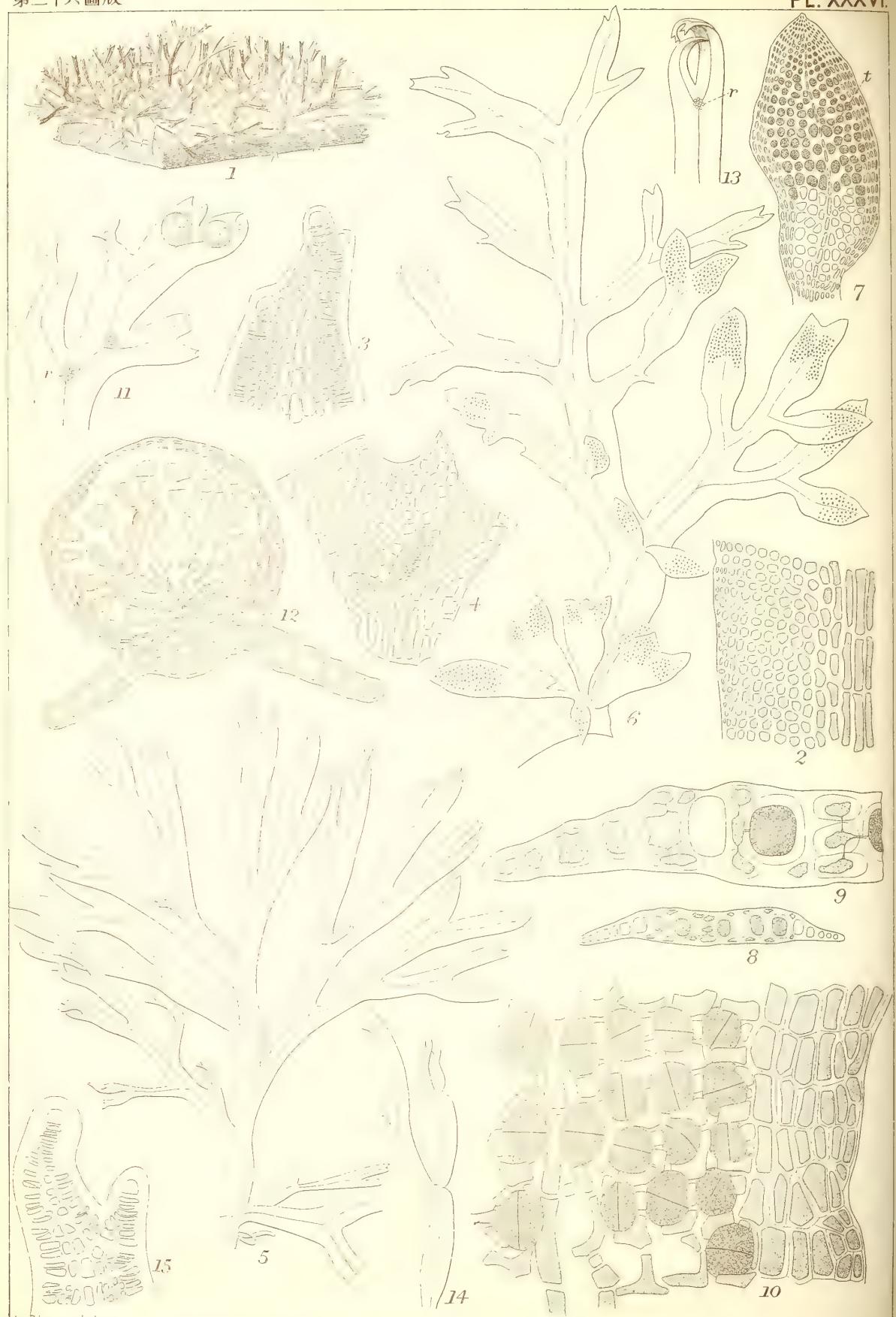
横断面, $\frac{340}{1}$.—8: 四分胞子ヲ存スル體ノ横断面ノ一部, $\frac{240}{1}$.—9:
a, b, c, 胎原列ノ細胞; s, s, 囊果形成ニ與カラザル細胞列ノ枝; d,
胎原列及中性細胞ヲ支持セル細胞, $\frac{600}{1}$.—10: 囊果ヲ有スル體
ノ横断面, $\frac{54}{1}$.—11: 囊果, $\frac{85}{1}$.—12: 助細胞ノ癒合シタル細胞, l, ヨ
リ中心細胞即チ仁柄細胞ヲ分裂シタルモノ, $\frac{220}{1}$.

Addenda.

Put the following lines above the line “Enantiocladia Falkenberg 1889” on p. 43:—

PL. IX, Fig. 1. Fig. 1: sterile frond of *Enantiocladia latiuscula* (Harv.) Okam. in nat. size.

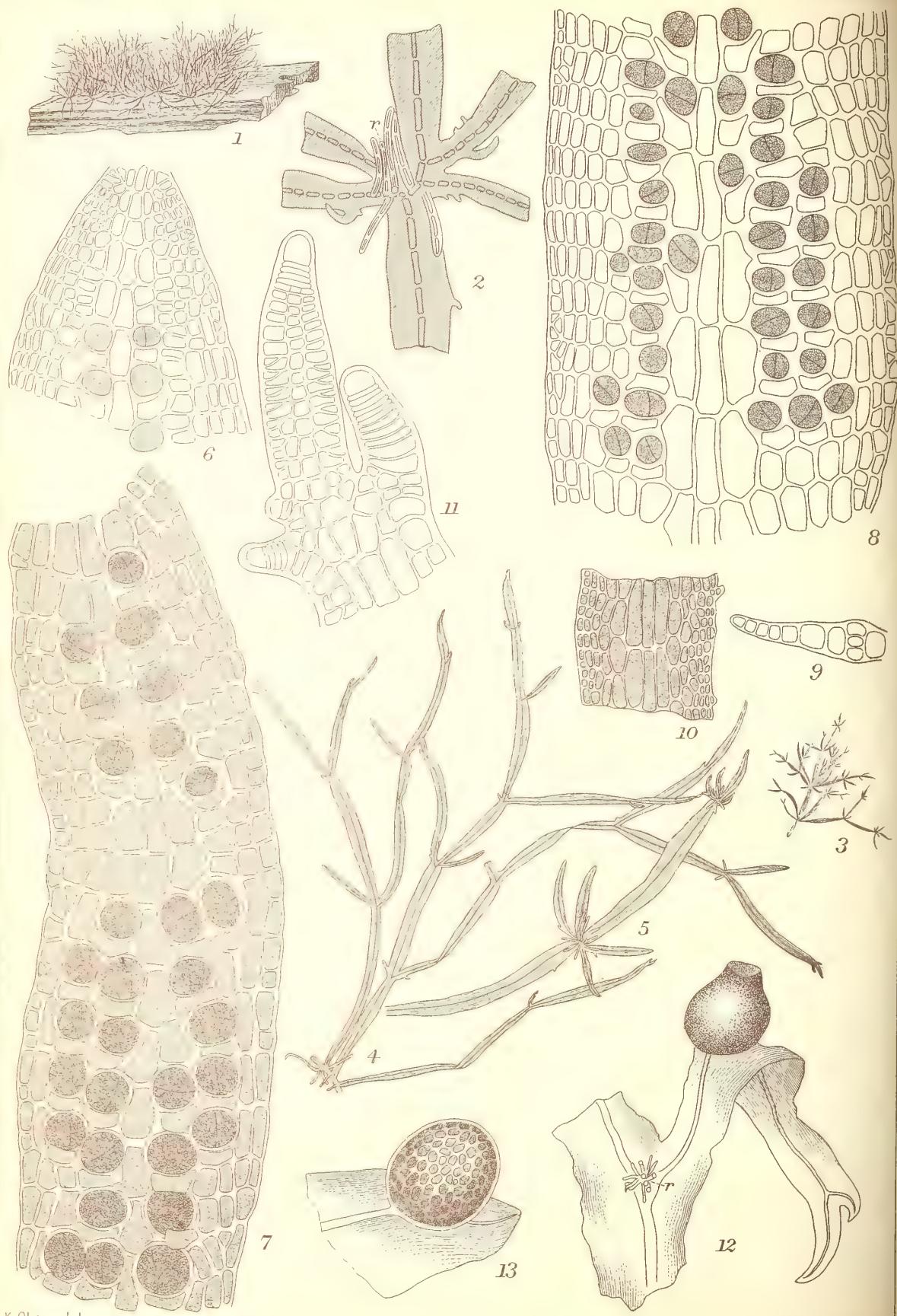
PL. X, Fig. 1-17. Fig. 1: portion of frond bearing cystocarps, $\frac{1}{1}$.—Fig. 2. cystocarp, $\frac{22}{1}$.—Fig. 3: vertical section of a cystocarp, $\frac{22}{1}$.—Fig. 4: ramulus bearing procarps and unfertilized ones which appear like nipple-shaped ramelli, $\frac{91}{1}$.—Fig. 5: apical portion of the same showing young procarps; e, e, margin of the ramulus, $\frac{175}{1}$.—Fig. 6: procarp with a trichogyne, $\frac{220}{1}$.—Fig. 7: ventral view of a branch bearing fertile ramelli, $\frac{54}{1}$.—Fig. 8: portion of frond bearing stichidia, $\frac{1}{1}$.—Fig. 9-10: ventral view of branches bearing stichidia-like remelli, $\frac{12}{1}$.—Fig. 11: stichidium viewed from the lateral side showing cover-cells, $\frac{91}{1}$.—Fig. 12: young stichidium carrying “hair-leaves” along its dorsal median line, $\frac{220}{1}$.—Fig. 13: cross-section of a stichidium with the ventral-side above; a, the axial cell; b, b, pericentral cells bearing tetrasporangium on each of them; c, c, cover-cells; $\frac{220}{1}$.—Fig. 14: cross-section of a branch; the upper, the ventral and the lower, the dorsal sides, $\frac{22}{1}$.—Fig. 15: another cross-section of a branch with the ventral side above; a, axial cell; $\frac{220}{1}$.—Fig. 16: longitudinal section of a branch cut parallel to the surface of frond, $\frac{22}{1}$.—Fig. 17: longitudinal section of a branch cut perpendicular to the surface, $\frac{50}{1}$.



K. Okam. del.

n 15 1 5 12 3 14 4 6 13 8 10 2 9 7

Caloglossa Leprieurii (Mont.) J. Ag.
あやぎぬ Fig. 1-15.



K. Okam. del.

6 1 7 4 2 13 11 5 10 12 9 3 8

Caloglossa ogasawaraensis Okam. ハトアヤギぬ Fig. 1-11.
Caloglossa Leprieurii (Mont.) J. Ag. あやぎぬ Fig. 12-13.

Caloglossa Leprieurii (Mont.) J. Ag.

Nom. Jap.: *Aya-ginu*.

PL. XXXVI, Fig. 1-15; PL. XXXVII, Fig. 12-13.

Caloglossa Leprieurii (Mont.) J. Ag. Epicr. p. 499; Cramer Ueber Calog. Lepr. (1891) cum 3 tab.; De Toni Syll. Alg. IV, p. 729.—*Caloglossa Leprieurii* (Mont.) J. Ag. var. *continua* Okam. Alg. Jap. Exsic. (岡村日本海藻標品) Fasc. II, no. 67; Id. Contents of the Alg. Jap. Exsic. p. 1 (Bot. Mag. Tokyo, Vol. XVII, 1903).—*Caloglossa Leprieurii* (Mont.) J. Ag. var. *alternifolia* Okam., 日本藻類名彙 p. §1.—*Delesseria Leprieurii* Mont. in Ann. Sc. Nat., Bot., II. Ser., t. 13, p. 196, Cent. II, t. V. f. 1; Harv. Ner. Bor. Amer. t. XXII, c; J. Ag. Sp. Alg. II, p. 682.—*Hypoglossum Leprieurii* Kuetz. Sp. Alg. p. 875; Id. Tab. Phyc. XVI, f. 10.

Hab.: On piles, twigs, stones etc. at river mouth. Kaidaichi (near Hiroshima, Prov. Aki), Prov. Tosa, Hamajima (Prov. Shima), River Ko-yahagi (Prov. Mikawa), Atsuta (Prov. Owari), River Sumida and Fukagawa (Tokyo). Fruits:—Summar.

Remarks: When I distributed the specimens of the present plant in my "Algae Japonicae Exsiccatae" Fasc. II, no. 67, I took it for a variety, having been struck by the mostly subalternate arrangements of branches and continuous (i.e. not strongly constricted) joints. The diagnosis I have given or the new var. *continua* runs as follows:—"Fronds decumbent irregularly dichotomous or often subalternate, continuous (not constricted), slightly bending at apices toward the under-surfaces." But, more afterward, as I found that these characters are not strictly peculiar to our plants, though such are more usual in them and also that there are similar cases in exotic

forms, as it is shown in Cramer's I.c, Taf. I, fig. 8 and 9, I came to conclude that our plant is not so much different from the typical species that it should be taken for a variety.

PL. XXXVI. Fig. 1: fronds of *Caloglossa Leprieurii* growing on plank in nat. state and size, $\frac{1}{1}$.—Fig. 2: surface-view of the half of frond, $\frac{80}{1}$.—Fig. 3: growing portion of frond, $\frac{220}{1}$.—Fig. 4: young proliferations, $\frac{80}{1}$.—Fig. 5: frond having more regular arrangements of segments, $\frac{5}{1}$.—Fig. 6: frond having subalternate segments bearing tetrasporic sori, $\frac{12}{1}$.—Fig. 7: fertile segment with a tetrasporic sorus, t ; the lower cells already emptied, $\frac{54}{1}$.—Fig. 8: cross-section of a sorus, $\frac{80}{1}$.—Fig. 9: portion of the same, $\frac{220}{1}$.—Fig. 10: surface-view of a portion of sorus on the right side of the midrib, showing tetrasporangia and cortical cells, $\frac{220}{1}$.—Fig. 11: under-surface of frond, showing cystocarps and beginning of roots, r , $\frac{12}{1}$.—Fig. 12: longitudinal section of a cystocarp, $\frac{140}{1}$.—Fig. 13: terminal portions of frond bending toward the undersurface; r , roots, $\frac{12}{1}$.—Fig. 14: portion of frond taken from an American specimen, slightly magd.—Fig. 15: growing apices of the same, $\frac{450}{1}$.

PL. XXXVII, Fig. 12-13. Fig. 12: cystocarp and root fibres, r , $\frac{22}{1}$.—Fig. 13: surface-view of cystocarp, $\frac{80}{1}$.

Caloglossa (Harvey 1852) J. Agardh 1876.

あやぎぬ属。

SARCOMENIAE (DELESSERIACEAE).

サルコメニア亞科 (このはのり科).

體ハ扁平,葉狀,屢々叉狀ニ分歧シ,分歧點ニ於テクビレタル如クナリテ關節シ,此所ヨリ往々其裏面ニ副枝ヲ發出ス;成長點ハ横ニ關節セル大ナル頂細胞ヲ有シ,體ハ一層ノ細胞ヨリ成リテ薄ク,中肋ヲ存ス;中肋ハ之ヲ上ヨリ見ル時ハ三條ノ

細胞列ヨリ成ル——四分胞子囊ハ澤山ニ上部ノ枝ニ生ジ, 中肋ノ兩側ニ於テ一層ニ形成セラレ, 少シク斜上セル列ヲナシテ規則正シク排列ス(此部分ハ上下ニ一層ノ皮層細胞ヲ有スルヲ以テ, 胞子ハ其中層ノ細胞ヨリ形成セラル); 胞子ハ三角錐形ニ分裂ス。胎原ハ上部ノ枝ノ中肋ニ沿ヒテ其裏面ニ形成セラル。囊果ハ往々強ク反曲セル最上部ノ枝ノ頂端ニ近ク, 若クハ分岐點ニ於テ, 裏面ニ一個ヅ、形成セラレ, 中肋上ニ座シ, 小ニシテ球狀ニ膨出ス; 胎座ハ僅ニ認ムルヲ得ベク, 果皮ハ薄ク, 果皮ノ内層ハ稍緩ク構成セラレ, 小サキ不明ナル果孔ヲ存ス; 胞子ヲ成熟スル絲ハ束狀ヲナシテ密ニ相集リ, 胞子絲ノ各關節ハ胞子トナリ, 相集リテ腎臟形ノ塊ヲナス。

4-5種類アレドモ, 熟レモ甚シク異ナルコトナク, 各種ノ差極メテ僅カナリ。凡テ暖海ノ產ニシテ, 概ネ淡鹹兩水ノ混交スル河口ノ如キ所ニ生ズ。太平洋ニ產スルモノ多シ。

屬ノ名ハ *calos* (美シキ) + *glossa* (舌) トヨリ成ル, 即チ體形ト其美ナルトニ採レルモノナリ。

Caloglossa Leprieurii J. Ag.

あやぎぬ 岡村稱。

第 XXXVI 圖版, 1-15 圖; 第 XXXVII 圖版, 12-13 圖。

體ハ扁平, 葉狀, 細キ線狀ニシテ, 屢々叉狀ニ分岐シ, 分岐點ノ裏面ヨリ毛狀ノ根ヲ出シテ匍匐シ, 叢生ス, 幅 1 mm. ニ足ラズ。分岐ノ性質ハ叉狀ナレドモ, 正シカラズシテ叉枝稍互生ヲナスモノ多シ, 罕ニ稍正シキ叉狀ヲナスモノナシトセズ, 而シテ分岐點ノ裏面ヨリ副枝ヲ生ズルコト常ナリ。分岐點ハ多少クビルレドモ往々殆ドクビレザルコトアリ, 而シテ枝端ハ概ネ裏面ノ方ニ反曲ス。體ハ一層ノ細胞ヨリ成リ, 其排

列、極メテ規則正シクシテ、先ヅ中肋ヨリ斜ニ一列ノ細胞ニテ成レル枝ヲ兩側ニ出シ、其枝ノ各細胞ヨリ體ノ縁邊ニ向テ同様ノ枝ヲ出シ、此枝相互ニ並行スルコト、第2圖ト3圖トニ明ナリ。——四分胞子囊ハ上部ノ枝ニ群集シテ正シキ排列ヲナシ、體ノ中層ノ細胞ヨリ形成セラル(第9圖)。囊果ハ球狀ニシテ上部ノ分歧點若クハ上部ノ枝ノ中肋ノ裏面ニ生ズ。質ハ薄キ膜質ニシテ紙ニ付着セズ。色暗紫色ニシテ乾燥スルトキハ美シキ青味ヲ帶ブ。

產地：河口ノ棒杭、板等ノ上ニ付着ス。廣島海田市、土佐下知村葛島橋下、志洲濱島、三河古矧川口、尾張熱田、江戸川口；隅田川本所横綱、深川越中島(東京)。果實：一夏季。

分布：太西洋溫暖部、太平洋ニウホルランド、ニウジーランド、印度洋。

備考。囊キニ予ノ日本海藻標品第二帙ヲ發行スルニ當リ、予ハ本植物ノ分歧ノ稍互生ナルト、分歧點ノクビレ方ノ甚シカラザルトヲ以テ、之ヲ模範種ヨリ少シク變形シタルモノト認メ、Var. continua Okam. ナル名稱ヲ付シテ其第97號ニ編入セリ。爾來多數ノ標品ニ就テ見ルニ、上記ノ性質ハ必ズシモ重キヲ置クニ足ラズ、其否ラザルモノモ往々ニシテ存スルコトヲ知レリ；加フルニ Cramer's Ueber Calog. Lepr. (1891) Taf. I, fig. 8 and 9ニ依ルニ、海外ノモノニテモ同ジク稍互生ニシテ本邦ノモノト同様ノ形セルモノアリ而シテ別ニ之ヲ變種ト認メザルヲ知リタルヲ以テ、茲ニ予ハ予ノ囊ニ Var. continua トシタルモノ並ニ予ノ日本藻類名彙ニ Var. alternifolia トシタルモノヲ廢スルノ至當ナルヲ認ムルニ至レリ。本種ノ如ク廣ク各地ニ分布スルモノハ自然周圍ノ狀況ニ應ジテ多少ノ變形ヲ免カレザルコトヲ思ヘバ、些ノ相違ハ敢テ種ノ價值ヲ云々スルニ足ラズト思惟ス。

第 XXXVI 圖版, 1-15 圖. 1: *Caloglossa Leprieurii*, あやぎぬ, ノ板上ニアルモノ, $\frac{1}{1}$.—2: 體ノ表面ノ半分, $\frac{80}{1}$.—3: 上部ノ枝ノ表面ニシテ, 成長點細胞ト表面細胞ヲ形成セラル、狀トヲ示ス, $\frac{220}{1}$.—4: 體ノ裏面ヨリ副枝ヲ生ズルモノ, $\frac{80}{1}$.—5: 稍正シク叉狀ヲナセルモノ, $\frac{5}{1}$.—6: 互生ノ如キ分岐ヲナセルモノニシテ四分胞子群ヲ有スルモノ, $\frac{12}{1}$.—7: 四分胞子群; t , 胞子; 下ナル無色ノ細胞ハ胞子ノ脱出シタルモノ, $\frac{54}{1}$.—8: 胞子群ノ横断面, $\frac{80}{1}$.—9: 同上ノ一部, $\frac{220}{1}$.—10: 中肋ノ右半部ニ於ケル四分胞子ト其皮層細胞, $\frac{200}{1}$.—11: 體ノ裏面ヨリ見テ囊果ト毛狀根, r , トヲ示ス, $\frac{15}{1}$.—12: 囊果ノ縦断面, $\frac{140}{1}$.—13: 裏面ノ方ニ枝端ノ反曲スル狀; r , 毛狀根, $\frac{12}{1}$.—14: 米國ノ標本ヨリ比較ノ爲メ取リタル體ノ一部, 郭大.—15: 同上ノ一部, $\frac{450}{1}$.

第 XXXVII 圖版, 12-13 圖. 12: 體ノ裏面ニ囊果ト毛狀根, r , トアルモノ, $\frac{22}{1}$.—13: 囊果ヲ表面ヨリ見タルモノ, $\frac{80}{1}$.

Caloglossa ogasawaraensis Okam.

Nom. Jap.: *Hoso-ayaginu*.

PL. XXXVII, Fig. 1-11.

Caloglossa ogasawaraensis Okam. Algae from Ogasawarajima (1897) p. 13, f. A-D. (Bot. Mag. Tokyo, Vol. XI, No. 120, p. 14, 1897).—De Toni Syll. Alg. IV, p. 730; Okam. Alg. Jap. Exsic., (日本海藻標品) Fasc. II, no. 68; 岡村, 日本藻類名彙 p. 51.—*Caloglossa Zanzibariensis* Goeb. Eine Süßwasserfloridee aus Ost-Afrika p. 5 (Flora Vol. 85, 1898, p. 65, f. 1-6); De Toni Syll. Alg. IV, p. 731.

Diagn. “ Fronds violaceous, pulvinate, caespitose, repent, thinly mid-ribed, with narrow linear-lanceolate, leafy segments, at-

tenuated towards both ends, not stipitate, unequally dichotomous, sub-articulatedly constricted, rooting and proliferating new similar leaves from constricted parts, also proliferating laterally from both sides of basal portion of segments, thus assuming fascicular disposition of segments."—
Okam. Alg. from *Ogasaw.*

Hab.: On piles, twigs, stones etc. at river mouth. Ogasawarajima (R. Yatabe, Matsumoto), Prov. Tosa, River Ko-yahagi in Prov. Mikawa, Atsuta in Prov. Owari, River Sumida, River Yedo, Tokyo, River Tone, Isohara in Prov. Hitachi.

Descrip. "Segments are very narrow, linear-lanceolate, 500-900 μ broad, 3-5 mm. long, almost even or slightly undulated at margin, twisted, gradually attenuating towards both ends, more narrowly towards the base, and not petiolated, more or less provided with the continuation of the wing. The mode of ramification is dichotomous; but two arms of the dichotomy are not equal in length and size, one being always shorter and narrower than the other; often one arm is entirely suppressed. Proliferations from the mid-rib are observed neither in the membranous nor in the constricted parts. In the constricted parts, new leaves similar in shape to the segments are proliferated from both sides, and also from both margins of the basal portion of segments; they rise near to each other on one side and even as many as three are proliferated along one side. Proliferated leaves again proliferate other ones from similar places. Thus the segments seem to the naked eye to arise fascicularly from the constriction. The proliferated leaves are not at first united to the main segments by a distinct continuation of the mid-rib, as in the continuation of the main segments; but a little afterwards some of the cells of the membranous portion of segments become a little larger and larger than other cells and they form the continuation of the mid-rib.

Structure of frond does not essentially differ from other related species.”

—*Okam. l.c.* Tetrasporic sori are more or less elongated.

Remarks: “On making comparison with the original specimen of *Cal. Zanzibariensis* Goeb. which Mr. Reinbold has kindly sent me, I have found my plant to be identical with that mentioned.”—*Okam. Alg. Jap. Exsic. no. 68.*

PL. XXXVII, Fig. 1-11. Fig. 1: *Caloglossa ogasawaraensis* Okam. in nat. state and size.—Fig. 2: mode of branching from constricted part; r, roots; $\frac{54}{1}$.—Fig. 3: portion of frond detached, $\frac{1}{1}$.—Fig. 4-5: portion of fronds, magd., $\frac{12}{1}$.—Fig. 6-8: upper, middle and lower portion of a sorus respectively, $\frac{220}{1}$.—Fig. 9: cross-section of frond, $\frac{80}{1}$.—Fig. 10: surface-view of frond, $\frac{91}{1}$.—Fig. 11: growing apices of frond, $\frac{390}{1}$.

Caloglossa ogasawaraensis Okam.

はそあやぎぬ 岡村稱.

第XXXVII圖版, 1-11圖.

體ハ細キ線狀ニシテ扁平, 葉狀, 不規則ニ叉狀ニ分レ, 分岐點ハ宛モ關節セル如ククビレ, 其部ノ裏面ヨリ毛狀根ヲ出シテ匍匐シ, 叢生ス; 幅0.5-1 mm. ニシテ, 各節間ノ長サ3-5 mm. アリ體ハ往々捻レ, 各部ノ緣邊ハ平坦若クハ輕ク波狀ヲナシ, 上下ノ分岐點ノ方ニ細ケレドモ, 柄ヲ有スル如クナラズシテ, 膜ハ多少廣ク連ナル. 分岐法ハ叉狀ナレドモ, 叉枝ハ長サ及ビ大サトモ等シカラズ, 又往々其何レカ一方ノ枝ハ全ク存セザルコトアリ. 膜狀部並ニ結節部ノ中肋ヨリ枝ヲ副出スルコトハアラズシテ, 結節部ニアリテハ, 兩緣ヨリ他ノ部ト同様ノ枝ヲ生ジ, 各部ノ基部ニ近キ所ノ兩緣ヨリモ亦之ヲ生ズ; 其出ルヤ互ニ相接近シ, 往々三條ノ枝同一側ヨリ出ルコトアリ,

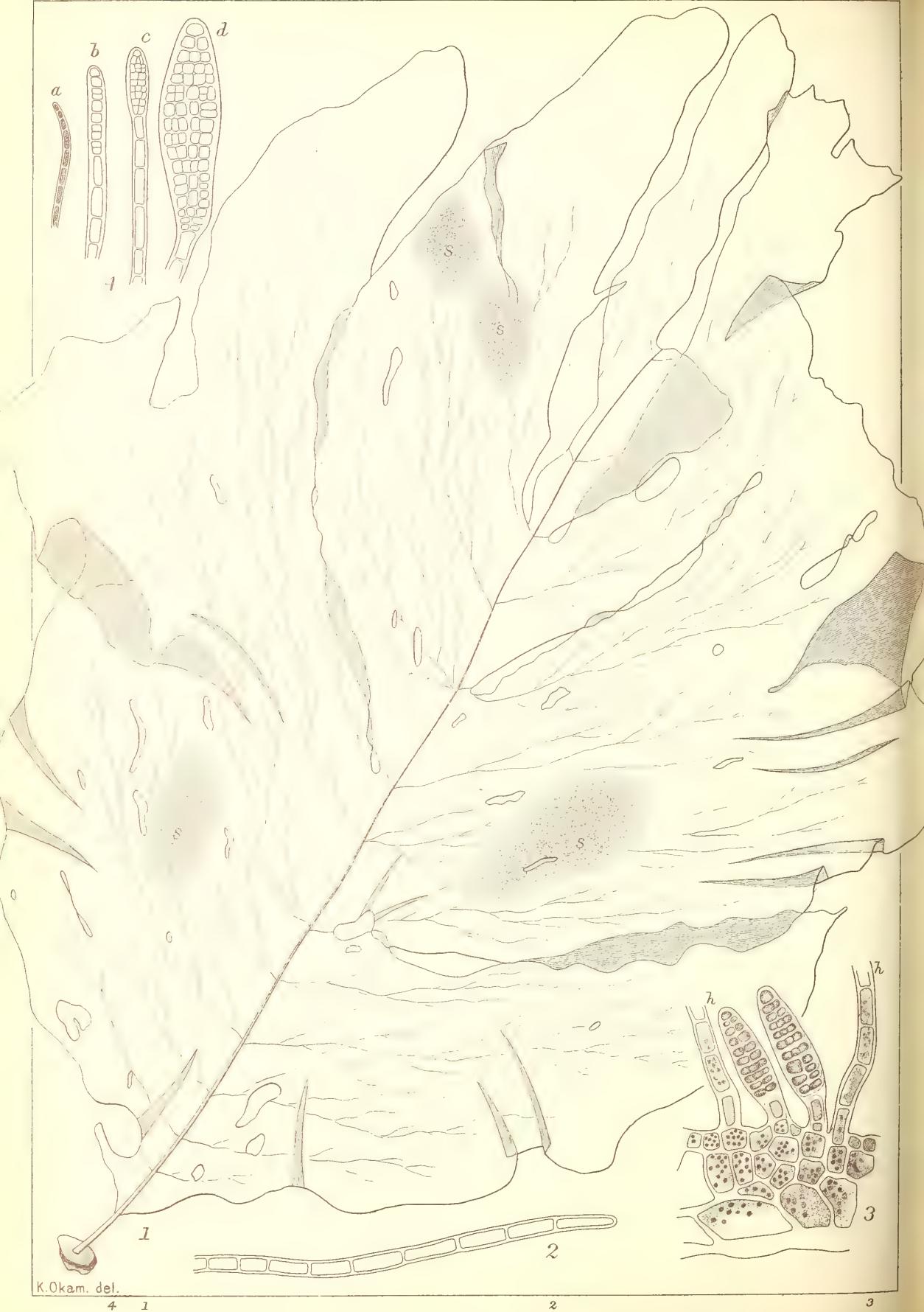
此副出シタル枝更ニ又同様ノ所ヨリ同様ニ副出ス; 故ヲ以テ肉眼ニテハ、枝ハ結節點ヨリ叢生スル如ク見ユ。副出シタル枝ハ始メ他ノ部ト中肋ヲ以テ連結スルコトナシト雖モ、後之ヲ生ジテ彼是相連ルニ至ル。體ノ構造及ビ四分胞子囊群ハ他ノ種ト大體ニ於テ差ナシ。子囊群ハ多少長シ。

產地：河口ノ杭、小枝、石等ノ上ニ付着ス。小笠原島、(矢田部博士、松本)、土佐下知村葛島橋下(椎原)、三河吉矧川、熱田、隅田川本所横網、江戸川、深川越中島、利根川、常陸磯原。

分布：亞弗利加ザンジバール。

備考：本種ハ結節點ノ部分葉柄ノ如ク細カラザルト、各關係ノ基部ノ兩緣ヨリ枝ヲ生ズルトニヨリテ *Caloglossa Beccarii Zanard.* ト異ナリ、分布ノ點ヨリスレバ太洋洲方面ニ產スル *C. mnioides* Harv. ニ類スレドモ、此種ハ叉枝ノ不同ナラザルト各節間ノ基部ノ兩緣ヨリ枝ヲ副出セザルトニ依リテ本種ト異ナリトス。1898年Geobel氏ハ Stuhlmann 氏ガ南亞弗利加東岸ニテ得タル一種ヲ *Cal. Zanzibariensis* ト命名シテ發表シタレドモ、予ハ Reinbold 氏ノ厚意ニ依リ氏ヨリ贈ラレタル其種ノ標品ニ就テ見ルニ、該種ハ本種ト同一ナルコトヲ知リタルヲ以テ、予ハ此ヲ本種ニ合セタリ。近頃 Oltmanns 氏モ予ノ説ヲ贊スルコト氏ノ *Morph. u. Biologie der Algen* 第II卷175頁ニ説アリ。

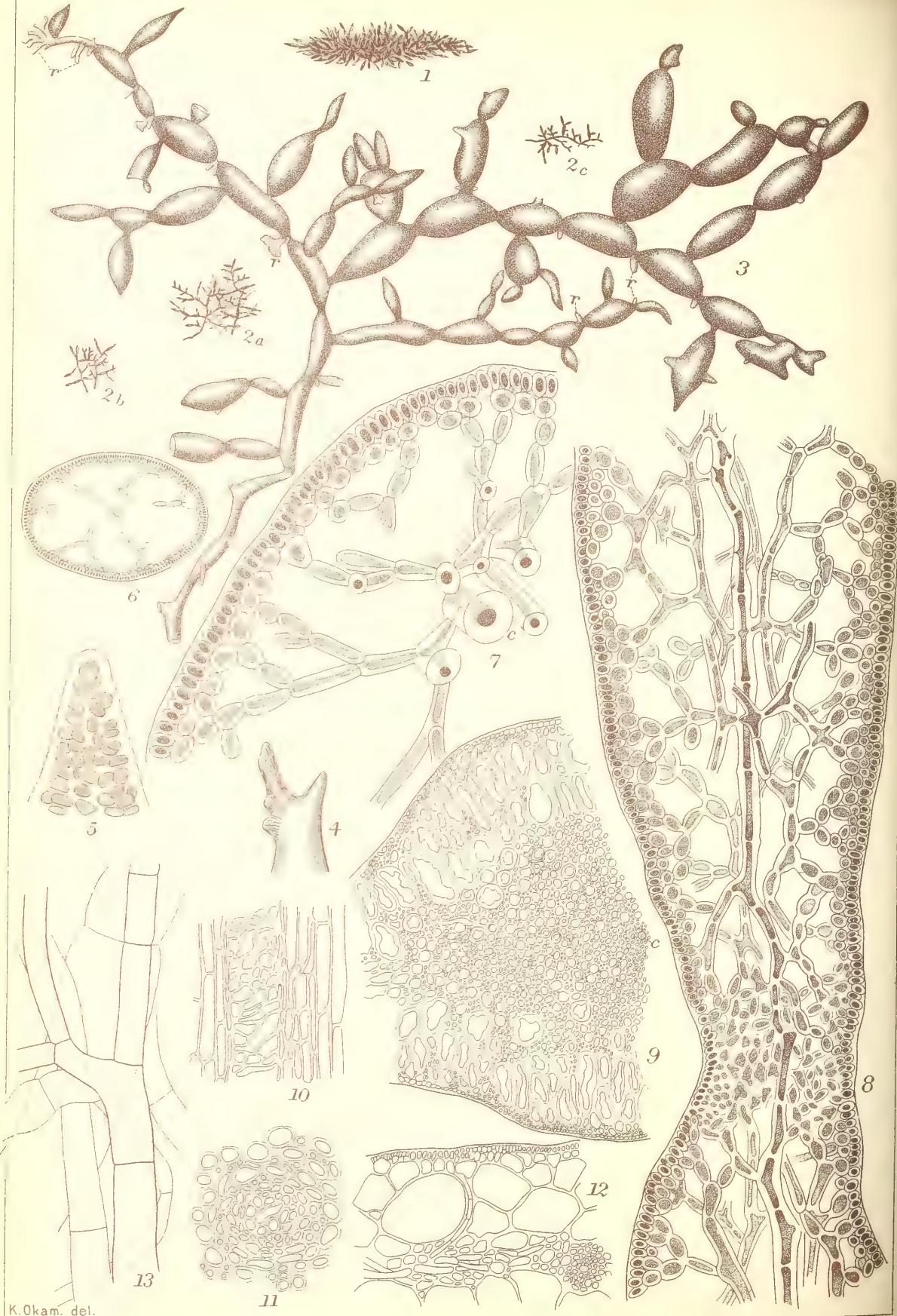
第XXXVII圖版、1-11圖。1: *Caloglossa ogasawaraensis* Okam., いとあやぎぬ、ノ自然ノ狀態、1.—2: 結節部ヨリ枝ヲ生ズル狀; r根; $\frac{54}{1}$.—3: 體ノ一部ヲ分離シタルモノ、 $\frac{1}{1}$.—4-5: 同上、 $\frac{12}{1}$.—6-8: 四分胞子囊群ノ上部、中部及下部、 $\frac{220}{1}$.—9: 體ノ橫斷面、 $\frac{80}{1}$.—10: 體ノ表面、 $\frac{91}{1}$.—11: 成長點、 $\frac{390}{1}$.



K. Okam. del.

4 1 2 3

Desmarestia tabacoides Okam. n. sp. たばこぐさ Fig. 1-4.



K. Okam. del.

5 2b 6 13 2a 11 10 4 1 7 2c 12 9 11 12 13 8

Catenella Opuntia (G. et W.) Grev. いそもくくわ Fig. 1-8.
Desmarestia tabacoides Okam. n. sp. たばこぐさ Fig. 9-13.

Desmarestia tabacoides Okam. n. sp.

Nom. Jap.: *Tabako-gusa*.

PL. XXXVIII, Fig. 1-4; PL. XXXIX, Fig. 9-13.

Tabacopsis acetosa Okam. 日本藻類名彙 p. 121.

Diagn.: Fronds very large, leaf-like, shortly stipitate with broadly oval, very usually obliquely lobed, simple, midribbed and coriaceous lamina. The midrib is slightly prominent below but gradually becoming fainter upwards, with opposite veins which dissolve, even from the base, into numerous fine veinlets. Sori forming irregularly roundish patches on both surfaces. Gametangia ovato-cylindrical or oblong, produced on the apical portion of simple hairs being accompanied by sterile ones. Colour chestnut-brown when recent, soon changing into bluish-green when exposed to air.

Hab.: On rocks, stones or shells of *Haliotis gigantia* between tide-marks. Nagasaki, Nemoto (Bōshyū), Enoshima (Prov. Sagami), Onahama (Prov. Iwaki). Gametangia: June-August.

Descr. Fronds very large, leaf-like, rising from a circular disc with a short subcylindrical stem which is 1-2 cm. long and about 2 mm. in diameter. Lamina oval or oblong, simple and not lobed in young state, being traversed by a slightly prominent midrib which becomes weaker upwards and finally vanishes before reaching the apex. On both sides of the midrib, there arise opposite veins which soon dissolve, even from the base, into numerous fine veinlets and become invisible to the naked eyes towards margins. The lamina is very rarely almost simple and entire when old; but it becomes usually torn up obliquely into many lobes, whose indentation often reaches the midrib. There is no regularity in the arrangements of these lobes

which are of variable breadths. The outline of lamina is of large oval shape when carefully spread out in a plane, assuming the shape very much resembling a leaf of tobacco-plant, with the length of 30-70 cm. and breadth of 20-50 cm.

Structure of frond: In cross-section of midrib we find an axis occupying the centre. The axis is not composed of a single longitudinal row of cylindrical cells, but of many short filamentous cells, densely packed and firmly coalesced in a very irregular manner. Surrounding the axis, there is a layer composed of a thick bundle of longitudinally disposed cylindrical cells whose diameters are not uniform. Outside this layer, there is a thin layer of large empty parenchymatic cells, which diminish in size toward the surface, being covered by one or two layers of epidermal cells. The wall of the parenchymatic cells is thick and greatly swells up on absorbing water. Epidermal cells are polygonal when seen in surface-view. The structure of stem is exactly same as that of a thicker midrib except in the smallerness of parenchymatic cells. The central portion of stem is often destroyed in age, leaving a cavity. The structure of fine veinlets in membranous portion is essentially same as that of the midrib. Veinless portion of lamina is composed of 3 layers of cells. The medullary layer consists of filamentous cells, irregularly running and anastomosing by branching. The intermediate layer is composed of a few large empty parenchymatic cells externally covered up by one or two layers of epidermal cells. Peculiar roundish cells filled up with glittering contents, are uniformly scattered in the epidermal layer. Mode of growth of frond is at present unknown, owing to the lack of a very young frond,

Fructification: Gametangia are produced from hairs composed of a single row of cells. They are simple, never branched, and of the same nature as sterile hairs, each being produced from an epidermal cell.

Fertile ones have a definite growth, while sterile hairs grow indefinitely, elongating by the division of basal cells. The hairs in which gametangia are formed remain short; some cells near the free extremity divide by transverse partitions into smaller cells and put the beginning of gametangia, while the lower ones remain unchanged. The fertile cells then divide longitudinally and double rows of cells are thus formed. By repetition of longitudinal and transverse divisions, gametangia are fully formed, which are ovato-cylindrical or oblong. They are furnished with a pedicel composed of a single longitudinal row of cylindrical cells. The number of cells composing the pedicel varies from 2 to 6 or perhaps more. The length of sterile hairs varies from 203 to 384 μ with the breadth of 8.5-13 μ , while that of gametangia 38-53 μ by 13-15 μ , and the total length of the fertile hairs (i.e. gametangia and pedicel taken together) amounts to 43-114 μ . By this way, gametangia are accompanied by a few sterile hairs and both occupy irregularly roundish patches or sori having no definite boundary. Paranemata and sporangia unknown a present.

Colour and substance: The plant is chestnut-brown in colour when fresh. After removal from the sea it soon changes into pale greenish-yellow in exposure to air, or dirty greenish-blue when heaped together, owing to the decomposition. After drying, the colour changes into dull greenish-yellow. The plant gives slightly astringent and sour taste. The substance is coriaceo-membranous and rather brittle when fresh, but soon changes into tenacious consistency. In drying, plant becomes very thin and papyraceous and does not adhere to paper.

Remarks: Having been struck by the larger size of frond and nature of gametangia, I took the present plant provisionally for a new genus naming it *Tabacopsis acetosa* in my Nippon So.u-Mei ("En-

meration of of Japanese Algae") p. 121, putting it under subfamily *Tabacopsideae* of Fam. *Desmarestiaceae*. More afterward, however, characters of its changing colour of frond, its having astringent and sour taste, and its having midrib and veins led me to consider it as a species of *Desmarestia* in relation with other plants of that genus, though the mode of growth of frond is not known at present. The nature of reproductive organ is now imperfectly known among the plants belonging to the Family *Desmarestiaceae*, only unilocular sporangia having been detected in some species of *Desmarestia* and *Arthrocladia*. If my identification proves to be correct, then, the nature of plurilocular sporangia or gametangia may be said to have been brought to light.

PL. XXXVIII. Fig. 1: frond of *Desmarestia tabacoides* Okam. n. sp. bearing sori, s , s , $\frac{1}{2}$.—Fig. 2: one of sterile hairs, $\frac{350}{1}$.—Fig. 3: portion of cross-section of frond with 2 gametangia and hairs, h , h , $\frac{600}{1}$.—Fig. 4: different stages of the development of gametangia; a , $\frac{220}{1}$.
 $b-d$, $\frac{600}{1}$.

PL. XXXIX, Fig. 9-13. Fig. 9: portion of the cross-section of thicker midrib; c , the central axis; $\frac{50}{1}$.—Fig. 10: longitudinal section of the central axis, $\frac{220}{1}$.—Fig. 11: cross-section of the same, $\frac{220}{1}$.—Fig. 12: portion of cross-section of the lamina with a veinlet, $\frac{90}{1}$.—Fig. 13: filaments forming the medullay layer of the membranous portion of lamina, $\frac{220}{1}$.

Desmarestia Lamouroux 1813.

うるしぐさ属.

DESMARESTIACEAE. うるしぐさ科.

體ハ絲狀, 扁壓又ハ扁平ニシテ「バンド」狀乃至葉狀ヲナ

シ, 時トシテハ中肋並ニ側脈ヲ存シ, 兩緣ヨリ或ハ對生ニ或ハ互生ニ枝ヲ生ジ, 枝ハ概ネ明ニ長條ト短條トニ區別セラル. 短條ハ老成スル時ハ往々齒狀ヲナス. 體ハ始メ頂端ニ至ルマデ分岐セル細胞列ヨリ成リ, 其主軸並ニ側枝ハ頂端下ノ一局部ナル細胞ノ屢々横ニ分裂スルコトニ依リテ長サヲ增シ, 頂端ノ方ニハ別ニ皮層ヲ生ズルコトナクシテ裸出スレドモ, 下部ノ方ニハ後ニ形成セラルベキ「パレンキマ」細胞ノ組織ヲ以テ蔽ハル、ニ至ル(此伸長法ハ頂毛成長 (trichothallic growth) ト稱スルモノナルコト予ノ海藻學汎論 40 頁第 5 圖 1 ニアリ). 斯クテ充分發育シタル體ハ全部皮層細胞ヲ存スルモノニシテ, 其皮層組織ノ内層ハ大小不同ノ圓形—多角形ノ細胞ヨリ成リ, 外層ハ小サキ細胞ヲ以テ成ル. 子囊ハ未ダ充分ニ明ナラズ; 其或種(*D. viridis* (Müll.) Lamx.)ニ就テ知ラレタルモノハ一個ノ表皮細胞大ニナリ圓形ナル橢圓狀ヲナシテ内ニ動子ヲ形成スルモノトス.

約 12 種アリ; 多數ハ大西洋及太平洋ノ南部ニ產ス. 其最モ廣キ分布ヲ有スルモノハ *D. ligulata* (Light.) Lamx., 及ビ *D. viridis* (Müll.) Lamx. ニシテ兩種トモ我邦ニモアリ; 躍レモ海ヨリ取り出サル、ヤ否ヤ色素ノ速ニ分解スル性質アリテ, 概ネ澁味アル酸味ヲ有ス. 北部ノ海ニハ *D. aculeata* (L.) Lamx. 多シ.

屬ノ名ハ佛國ノ博物學者 A. G. Desmarest 氏ノ名譽ノ爲ニ命ジラレタリ.

***Desmarestia tabacoides* Okam. 新種.**

たばこぐさ 岡村稱.

第 XXXVIII 圖版, 1-4 圖; 第 XXXIX 圖版, 9-13 圖.

性質: 體ハ甚ダ大ニシテ, 葉狀, 短莖ヲ有シ, 潤キ卵圓形

ノ葉片ヲナス;葉片ハ概ニ常ニ斜ニ裂ケ,單葉ニシテ,中肋ヲ存シ,硬キ膜質ニシテ脆シ. 中肋ハ下部稍隆起スレドモ,漸次上方ニ細微トナリ,對生セル側脈ヲ存ス;側脈ハ殆ド其起點ヨリ多數ノ微細ナル細脈ニ分ル.—子囊群ハ體ノ兩面ニ不規則ナル圓班ヲ形成ス. 「ガメート」囊ハ單條ナル毛ノ上部ニ形成セラレ,卵形—圓柱狀乃至長橢圓形ニシテ,他ノ中性ナル毛葺ト混在ス. 色ハ新鮮ノ時ハ栗色ナレドモ,空氣ニ觸ルヽトキハ忽チ青綠色ニ變ズ.

產地: 潮線間ノ岩石又ハ鮑殼上等ニ產ス. 長崎,房州根本,相州江ノ島,磐城小名濱. 子囊:六一八月.

記載. 體ハ甚ダ大ニシテ葉狀,圓キ吸盤狀根ヨリ稍圓柱狀ナル短キ莖ヲ以テ立チ,莖ハ1-2 cm.長クシテ直徑約2 mm.アリ.葉片ハ卵圓形又ハ長橢圓形ヲナシ,幼キ時ハ單葉ニシテ分裂スルコトナク,少シク隆起セル中肋ヲ存ス;中肋ハ上部ニ至ルニ從テ細クナリ,頂端ニ達セザル前ニ不明トナル. 中肋ノ兩側ヨリ側脈ヲ對生ス;側脈ハ殆ド其起點ヨリ多數ノ微細ナル細脈ニ分レ,緣邊ニ近ヅクニ從テ肉眼ニ見ルベカラザルニ至ル. 葉片ハ老成スル時ハ極メテ罕ニ單葉ニシテ分裂セザルコトアレドモ,通常兩緣ヨリ中肋ノ方ニ斜ニ裂ケテ數多ノ裂片トナリ,其缺刻往々中肋ニ達ス. 裂片ハ其幅大小不同ニシテ別ニ一定ノ順序ナシ. 葉片ハ,注意シテ裂片ヲ擴グル時ハ,大ナル卵圓形トナリ甚ダシクたばこノ葉ニ類シ,長サ30-70 cm.幅20-50 cm.アリ.

體ノ構造. 中肋ヲ横斷スル時ハ中心ニ一ノ中軸アルヲ見シ. 此中軸ハ圓柱狀細胞ノ縦ニ列ナリテ成レルモノニアラズシテ,多數ノ短カキ絲狀細胞ヨリ成リ,密ニ相集リテ固着シ,極メテ不規則ニ團集ス. 中軸ノ周圍ニハ縦ニ排列セル圓柱狀細胞ノ厚キ一層アリテ,其細胞ノ大サハ大小一樣ナラズ.

此層ノ外部ニ大ナル中空ナル「パレンキマ」細胞ノ薄キ一層アリテ漸次表面ノ方ニ大サヲ減ジ,一二層ノ皮層細胞ヲ以テ蔽ハル。「パレンキマ」細胞ノ膜壁ハ厚クシテ,水ヲ吸收スル時ハ甚シク膨脹ス。表皮細胞ハ之ヲ表面ヨリ見レバ多角形ナリ。莖ノ構造ハ全ク太キ中肋ト同ジク,唯「パレンキマ」細胞ノ小ナルヲ異ナリトス。莖ノ中心部ハ往々老成スルニ隨テ破壊シ,空虚トナルコトアリ。膜部ノ細脈ノ構造ハ中肋ト大體同一ナリ。葉片ノ脈ナキ部分ハ三層ノ細胞ヨリ成ル:髓層ハ絲狀細胞ヨリ成リ,各方面ニ其枝ヲ出スヲ以テ錯綜ス。中層ハ數個ノ空虚ニシテ大ナル「パレンキマ」細胞ヨリ成リ,一二層ノ表皮細胞ヲ以テ蔽ハル。輝々タル内容物ヲ含メル圓キ細胞皮層中ニ平等ニ散在ス。體ノ伸長スル方法ハ極メテ幼キ標品ヲ獲ザルヲ以テ今之ヲ詳ニセズ。

生殖法:「ガメート」囊ハ一列ノ細胞ヨリ成レル毛ヨリ變成シ,此毛ハ一個ノ表皮細胞ヨリ伸出ス,而シテ單條ニシテ決シテ分岐スルコトナク,中性ノ毛ト同一ノ性質ナリ。然レドモ,實ヲ生ズル毛ハ其伸長ニ限リアレドモ,中性ノ毛ハ基部ノ細胞ノ分裂ニヨリテ無限ニ伸長ス。ガメート囊ヲ生ズル毛ハ短クシテ,頂端ニ近キ數個ノ細胞ハ横ニ分裂シテ數個ノ小細胞ヲナシ,以テ「ガメート」囊ノ基ヲナス,然レドモ下部ノ細胞ハ別ニ變化スルコトアラズ。子囊トナルベキ部分ノ細胞ノ次ニ縦ニ分裂シテ二縦列ヲナシ,以後數回縦横ニ分裂シテ「ガメート」囊ヲ形成ス;其充分ニ形成セラレタルモノハ圓柱狀—卵形又ハ長橢圓形ナリ,而シテ圓柱狀細胞ノ縦ニ連ナレル柄ヲ存ス。此柄ヲ作レル細胞ノ數ハ2-6個ニシテ或ハ夫以上アリ。中性ノ毛ノ長サハ $203\text{-}384\mu$ ニシテ幅 $8.5\text{-}13\mu$ ヲ有シ,「ガメート」囊ノ長サハ $38\text{-}53\mu$ ニシテ幅 $13\text{-}15\mu$ アリ,而シテ,「ガメート」囊ト柄トヲ合シタル全體ノ長サハ $43\text{-}114\mu$ アリ。斯クテ,「ガメート」囊ハ數條ノ中性毛ト混在シ,共ニ不規則ナ

ル圓形ノ班點即チ子囊群ヲナス;群ハ一定ノ區劃ナシ。「バラネマタ」及ビ游走子囊ハ今詳ナラズ。

色及質。色ハ新鮮ノ時ハ美シキ栗色ナレドモ,海ヨリ取出サル、ヤ否ヤ淡キ黃綠色ニ變ジ,或ハ多數堆積スル時ナドハ不快ナル青綠色ヲナス;其斯ノ如キハ蓋シ腐敗ニ依ルモノナルベシ。之ヲ乾燥スル時ハ黃綠色トナル。此植物ハ少シク酸キ澁キ味ヲ有ス。質ハ新鮮ノ時ハ硬キ膜質ニシテ稍脆ケレドモ,速ニ柔韌トナル。乾燥スル時ハ,極メテ薄クシテ紙ノ如クナリ,臺紙ニ附着セズ。

備考: 始メ予ハ本植物ノ體ノ大ナルト「ガメート」囊ノ性質ノ奇ナルトニ依テ之ヲ新屬ト考ヘ,予ノ日本藻類名彙p. 121ニハ *Tabacopsis acetosa* ノ名ヲ以テ,之ヲ Desmarestiaceae ノ亞科 Tabacopsideae 中ニ置ケリ。然レドモ,後,其體色ヲ變ズルコト,其澁キ酸味ヲ有スルコト,並ニ其中肋及ビ側脈ヲ有スルコト、ヨリ推シテ, Desmarestia 屬ノ一種ナラント思惟セリ;元來該屬ノ體ノ伸長法ハ頂毛成長ナレドモ,今本植物ニテハ之ヲ詳ニセザルガ故ニ,幾分不明ノ點アルヲ免カレズト雖モ,該屬ノ他ノ種ト比較シテ之ヲ本屬ニ編入スルニ至レリ。由來此科ノ植物ニ就テハ,生殖器ノ性質未ダ充分明ナラズ,其今日マデ Desmarestia 及 Arthrocladia ノ某々種ニ就テ知ラレタルモノハ,皆單子囊即チ游走子囊ノミニシテ,未ダ「ガメート」囊即チ複子囊ノ知ラレタルモノアラズ。故ニ,今若シ,予ノ査定ニシテ誤ナシトスレバ,此科ノ植物ノ生殖器ニ就テ一ノ光明ヲ與ヘタルモノト云フベシ。

本植物ハ其酸味アル成分ヲ有スル爲メ漁人ハ之ヲすぐさト稱シ,網絲ノ色ヲ脫色シ,鮑其他魚介類ヲ斃死セシメ,他ノ海藻ヲ害スル等頗ル有害ナルヲ以テ,偶々其採集物中ニ之ヲ混スルアレバ直チニ取り棄ルヲ常トス。

第 XXXVII 圖版. 1: 子囊群, s, s ヲ有スル Desmarestia tabacoides Okam. n. sp., たばこぐさ, ノ體, $\frac{1}{3}$.—2: 中性ノ毛, $\frac{350}{1}$.—3: 體ノ横斷面ノ一部ニシテ, 二個ノ「ガメート」囊ト中性ノ毛, h, h , トヲ示ス, $\frac{600}{1}$.—4: 「ガメート」囊形成ノ順序; $a; \frac{220}{1}; b-d, \frac{600}{1}$.

第 XXXIX 圖版, 9-13 圖. 9: 太キ中肋ノ横斷面ノ一部; a , 中軸; $\frac{50}{1}$.—10: 中軸ノ縦斷面, $\frac{220}{1}$.—11: 同上ノ横斷面, $\frac{220}{1}$.—12: 一條ノ細脈ヲ有スル葉片ノ横断面ノ一部, $\frac{90}{1}$.—13: 葉片ノ膜部ノ髓部ヲ形成スル絲狀細胞, $\frac{220}{1}$.

Catenella Opuntia (Good. et Woodw.) Grev.

Nom. Jap.: *Iso-mokkwa*.

PL. XXXIX, Fig. 1-8.

Catenella Opuntia (Good. et Woodw.) Grev. *Alg. Brit.* p. 166, t. 17; *Harv. Phyc. Brit. tab.* 88; *Kuetz. Sp. Alg.* p. 724; *Id. Tab. Phyc. Vol. XVI*, t. 71; *J. Ag. Sp. Alg. II*, p. 352; *Id. Epicr.* p. 588; *Hauck Meeresalg.* p. 186, f. 80; *Ardiss. Phyc. Medit. Vol. I*, p. 296; *De Ton Syll. Alg. IV*, p. 318; *岡村, 日本藻類名彙* p. 33.—*Fucus Opuntia Good. et Woodw. in Linn. Transact. III*, p. 219; *Turn. Hist. Fuci* t. 107.

Hab.: Riukiu (Col. Kuroiwa).

Pl. XXXIX, Fig. 1-8. Fig. 1: fronds of *Catenella Opuntia* (G. et W.) Grev. in nat. state and size.—Fig. 2, $a-c$: pieces of fronds detached, $\frac{1}{1}$.—Fig. 3: portion of frond magd.; r, r , roots, $\frac{10}{1}$.—Fig. 4: attaching organ formed near the apex of a branch, $\frac{91}{1}$.—Fig. 5: growing apex of frond, $\frac{600}{1}$.—Fig. 6: cross-section of frond, $\frac{91}{1}$.—Fig. 7: portion of the cross-section of frond; c , the axis; $\frac{340}{1}$.—Fig. 8: longitudinal section of frond, $\frac{220}{1}$.

Catenella Greville 1830.

いそもくくわ属.

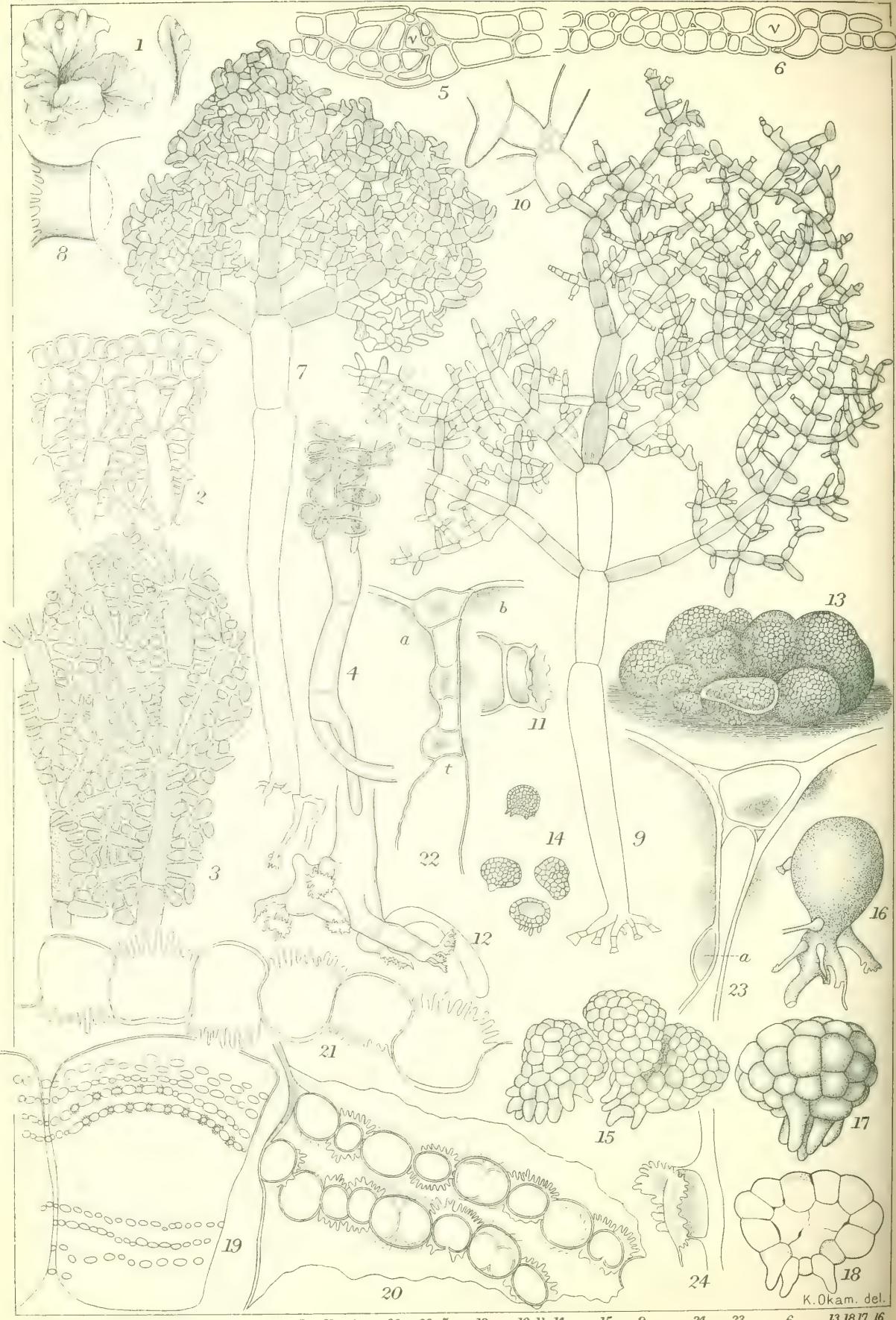
CYSTOCOLONIEAE (RHODOPHYLLIDACEAE).

シストクロニウム亞科(とさかのり科).

體ハ圓柱狀, 屢々クビレテ鎖狀ニ關節シ, 關節部ヨリ枝ヲ副出シテ分岐シ, 各部殆ド中空ノ如クシテ緩ク組織セラレ, 明ニ絲狀組織ヨリ成ル; 即チ體ノ内部ニ一條ノ中軸アレドモ往々他ノ絲狀細胞ト混ジテ不明ナルコトアリ, 此中軸ヨリ各方面ニ出ル枝ハ屢々不規則ニ叉狀ニ分岐シ緩ク錯綜シテ體腔ヲ走リ, 外方ニハ相集リテ皮層ヲナス. 體ノ成長點ハ互ニ斜ニ關節セル細胞ヨリ成ル.—四分胞子囊ハ特ニ之ヲ生ズベキ節間部ニ限ラレテ其皮層中ニ生ジ, 環狀ニ分裂ス. 囊果ハ通常, 短クナリタル末端ノ節間部ニ一ツヅ、形成セラレ, 其部ノ全部若クハ上部ノミヲ占ム; 仁ハ甚シク膨大シテ髓層ニ懸リ, 其部ノ細胞ハ太クシテ甚シク弛緩シ, 之ヲ包圍スル絲組織ナシ; 而シテ仁ノ内部ハ厚キ密ナル絲組織ヨリ成リテ, 其周圍ニ胞子層ヲ形成ス; 成胞絲ハ小總房狀ニ分岐シ, 其枝ハ周圍ノ弛緩セル組織中ニ分派シ, 仁ノ中心ヨリ周圍ノ方ニ放射狀ニ出デ, 其末端ノ細胞胞子トナリ, 以テ空球狀ノ胞子層ヲナス, 此層ハ只下部ノミ連續セズ; 果皮ハ體ノ外層ノ隆起シタルモノヨリ成リ, 甚シク緩クナリタル表皮ノ内層ヲ以テ仁ヨリ離レ, 稍不明ナル果孔ヲ其頂端若クハ斜ニ側面ニ開ク.

四五種アリテ專ラ濠洲, ブラジル, ボルネヲ等ニ產ス; 模範種ハ此處ニ圖說シタルモノニシテ, 殆ド各地ノ暖キ海ニ分布ス.

屬ノ名ハ *Catena* (鎖) + *ella* (小サキ意) トヨリ成ル, 即チ體形恰モ鎖狀ニ連ナレルニ依ル.



Anadyomene Wrightii Harv. うきありさう, Fig. 1-6. Struvea tenuis Zanard. あみは, Fig. 7-8.

Struvea delicatula Kuetz. さいのめあみは Fig. 9-12.

Dictyosphaeria favulosa (Mert.) Decsne. きつかうばさ Fig. 13-24.

K. Okam. del.

Catenella Opuntia (Good. et Woodw.) Grev.

いそもくくわ。岡村稱。

第 XXXIX 圖版, 1-8 圖。

體ハ 1-3 cm. 高キ枕狀ノ叢ヲナシ, 下部絲狀ニシテ, 蜈蚣シ, 根ヲ出シテ他物ニ固着シ, 上方ニ枝ヲ挺出ス。枝ハ圓柱狀又ハ扁壓, 各部同一ノ幅ニアラズシテ 0.5-1 mm. ニ達シ, 所々其五分ノ一程ノ細サナル所モ罕ナラズ, 而シテ關節狀ヲナシテ多少著シククビレ, 二乃至三叉狀ニ分歧シ, 此他往々小サキ枝ヲ存ス。枝ハ往々結節部ヨリ出デ, 廣開シ, 間々各方面ニ屈曲ス, 而シテ細キ枝ハ絲狀ニシテ結節明ナラザルコトアリ。枝端ハ尖銳又ハ鈍圓ナリ。節間部ハ稍長ク, 倒卵形, 棍棒狀, 長橢圓形, 紡錐狀等ニシテ其太サノ 2-10 倍長シ。四分胞子囊及ビ囊果ハ今之ヲ得ズ。質ハ膜質。色ハ暗紫色又ハ紅褐色ナリ。

產地: 潮線間ノ岩石上ニ匍匐ス。琉球(黒岩氏)。

分布: 太西洋, 地中海及アドリアチツク海, ニウジーランF, パタゴニア, チリー。

和名ハ節間部ノ形狀我邦ノ紋所ナルもくかうニ類スルモノアルニ依テ予ノ命ジタル所ナリ。

第 XXXIX 圖版, 1-8 圖。1: Catenella Opuntia (Good. et Woodw.) Grev., いそもくくわ, ノ叢, 自然大。—2, a-c: 分離シタル體ノ片々, $\frac{1}{2}$ 。—3: 體ノ一部; r, r, 根; $\frac{10}{1}$ 。—4: 枝ノ頂端ニ近ク付着器ヲ形成シタルモノ, $\frac{91}{1}$ 。—5: 體ノ成長點細胞, $\frac{600}{1}$ 。—6: 體ノ横斷面, $\frac{91}{1}$ 。—7: 體ノ横斷面ノ一部; c, 中軸, $\frac{340}{1}$ 。—8: 體ノ縦斷面, $\frac{220}{1}$ 。

Anadyomene Wrightii Harv.

Nom. Jap.: *Uki-ori-sō*.

PL. XL, Fig. 1-6.

Anadyomene Wrightii Harv. in Gray's *Journ. o Bot.* 1866 p. 48, t. 44, f. 5; J. Ag. Till Alg. Syst. VIII, p. 124; De Toni Syll. Alg. I, p. 367; Heydrich Beitr. z. Kenntn. d. Algenfl. v. Kaiser-Wilh.-Land, (Ber. d. deut. bot. Gesellsch., 1892, Bd. X) p. 461. Taf. XXIV f. 1-5; 岡村, 日本藻類名彙 p. 194.

Hab.: Ogasawarajima (Col. Matsumoto); Riukiu (C. Wright).

PL. XL, Fig. 1-6. Fig. 1: fronds of *Anadyomene Wrightii* Harv., $\frac{1}{1}$.—Fig. 2: marginal portion of frond. $\frac{80}{1}$.—Fig. 3: surface-view of median portion of frond, $\frac{80}{1}$.—Fig. 4: lower, rooting portion of frond showing lower intervening cells, $\frac{80}{1}$.—Fig. 5-6: cross-sections of frond; v, v, veins, $\frac{80}{1}$.

Anadyomene Lamouroux 1812.

うきおりさう属.

CLADOPHORACEAE (Oltmanns 氏ニ依ル). しほぐさ科.

體ハ葉狀ニシテ, 網狀ノ目ヲ有セズ, 全縁若クハ分裂シ, 往々數多ノ葉一個ノ短莖ヲ有シ, 許多分岐セル根ヲ以テ他物ニ固着ス。體ヲ構成スル細胞ハ二種ニシテ, 一ハ長卵形又ハ圓柱狀若クハ棍棒狀細胞ニシテ體ノ中肋ヲ形成シ, 一ハ短キ, 卵形, 多角形又ハ圓形細胞ニシテ, 往々多少裂片ヲ有スルモアリ; 此短キ方ノ細胞ハ中肋ノ兩側ニ恰モ羽狀ヲナシテ横ニ整列シ, 中肋ト中肋トノ間隙ヲ填充ス; 而シテ恰モ中肋間ニ横木ヲ置キタル如クナリテ往々二層ヲナス; 時ニ中肋ノ上迄モ蔽

セ懸ルコトアリ; 又別ニ多角形ノ細胞ヨリ成レル一層ノ表皮ヲ以テ蔽ハル、モノアリ。此等中肋間ノ小細胞ノ内容同時ニ多數ニ分裂シテ游走子ヲ生ジ其細胞膜ノ中央ニ圓キ孔ヲ開キテ脱出ス。

熱帶ノ海ニ6-7種アリテ、オーストラリアノ海岸、印度洋及地中海ノ沿岸ニ産ス。

備考：本屬ノ分類上ノ位置ニ就テハ從來多數ノ學者ハ之ヲ Valoniaceae 科ノ亞科 Anadyomepeae 中ニ置キタレドモ、近頃 Oltmanns 氏ハ氏ノ Morphologie und Biologie der Algen Vol. I, p. 259 = 之ヲ Cladophoraceae 中ニ置キタリ。由來 Valoniaceae ニ屬スル植物ハ其特徵ノ確固タルモノ明ナラズシテ、或ハ細胞ノ分裂面時計皿ノ如キ穹狀ヲナスヲ特徵トシ、或ハ tenaculum ト稱スル付着器ヲ有スルヲ以テスル等一定ナラザリシガ故ニ、種々ナル植物ヲ包含セリ。今予ハ Oltmanns 氏ノ所說ヲ賛シ之ヲ此科ニ置クモノナリ。

屬ノ名ハ ana (上方ニ) ト dyo (間ニ入ル) トヨリ成ル。

Anadyomene Wrightii Harv.

うきおりさう 岡村稱。

第XL圖版, 1-6圖。

體ハ花形ノ叢ヲナシ、葉狀ニシテ、充分ニ成長スル時ハ腎臟形ニ擴ガリ、(予ノ有スル標品ニテハ約2 cm. 程ノ高サヲ有ス)波狀ニ縮皺シ分裂ス。葉片ハ皮層ヲ以テ蔽ハル、コトナク、掌狀ニ列セル3-5條ノ圓柱狀又ハ稍棍棒狀ノ中肋ヲ有シ、其鈍圓ナル頂端ヨリ更ニ同様ニ分岐シ、其長サハ其徑ノ3-5倍ニシテ、横ニ數個ノ細胞ニ分裂スルコトアリ、而シテ肋間細

胞(intervening cells ノ譯)ハ横ニ長楕圓形ヲナシ,漸次分裂シ,概
ニ圓形一多角形ヲナス.

產地: 小笠原島(松本氏);琉球(C. Wright).

分布: ニウギニア(Schneider, Heydrich).

備考: 肋間細胞ノ形成セラル、方法ニ就テハ未だ充分明
ナラズ;勿論中肋細胞ノ側面ヨリ之ヲ分裂シ,其一旦斯ノ如ク
シテ形成セラレタルモノ更ニ繼續分裂シテ遂ニ肋間ヲ填ム
ルコトハ明ナリト雖ドモ, Heydrich 氏ハ上記ノBeitr. z. Kenntn. d.
Algenfl. v. Kaiser-Wilh.-Land p. 461, Taf. XXIV, f. 1-5 = 於, テ氏ノ見ル
所ヲ論ゼリ;氏ハ其1-4圖bニ示ス如ク, 肋間細胞ハ(少ナクトモ體
ノ下部ナル根ノ付近ニアル)中肋細胞ヨリ分裂スルニアラズ
シテ此植物ノ「アキネート」胞子ガ此處ニ付着發芽スルニヨル
ニアラズヤトノ說ヲ持セリ. 盖シ氏ヲシテ斯ノ如キ考ヲ懷
カシメタルモノハ, 此處ニ予ノ第4圖ニ示ス如ク, 根ノ付近ニ
アル肋間細胞ガ多少根ノ如キ裂片ヲ有スルヲ以テナリ. 然
レドモ, Oltmanns 氏ノ上記ノ書ニハ Heydrich 氏ノ此說ヲ引用セ
ザルヲ以テ, 或ハ氏ノ說ハ信ヲ措クニ足ラザルカ;暫ク記シテ
疑ヲ存シ, 以テ他日ノ研究ニ資ス.

第XL圖版. 1-6圖. 1: Anadyomene Wrightii Harv., うきおりさう,
ノ自然ノ狀態, 1.—2:體ノ緣邊, $\frac{80}{1}$.—3:體ノ中央部ノ表面, $\frac{80}{1}$.—
4:體ノ下部ノ根ヲ形成スル部分ニシテ其部ノ肋間細胞ハ
中肋細胞ノ上ニ懸リ, 恰モ「アキネート」胞子ガ萌發シテ根ヲ生
ジタル如キ裂片ヲ有スルモノ, $\frac{80}{1}$.—5-6:體ノ橫斷面; v, v 中肋,
 $\frac{80}{1}$.

Struvea tenuis Zanard.

Nom. Jap.: *Ami-ha*.

PL. XL, Fig. 7-8.

Struvea tenuis Zanard. *Phyc. Papuanæ n. 17*, in *Nuovo Giorn. Bot. Ital.* 1878, p. 39; Murray et Boodle A Str. and Syst. Account of the genus *Struvea* (*Ann. of Bot.* Vol. II, 1888-89.) p. 281, n. 5, t. 16, f. 5; De Toni *Syll. Alg.* I, p. 366; 岡村, 日本藻類名彙 p. 192.

Hab.: On *Digenea simplex* growing between tide-marks. Riukiu (col. Kuroiwa).

Remarks: As the specimen before us has 3-4 times pinnate reticulation instead of bipinnate, I am in some doubts in referring the present plant to this species. A young form of *S. delicatula*?

PL. XL, Fig. 7-8. Fig. 7: frond (3-4 times pinnate) of *Struvea tenuis* Zanard., $\frac{1}{18}$.—Fig. 8: tenaculum $\frac{600}{1}$.

Struvea Sond. 1845.

あみは属.

SIPHONOCLADIACEAE (Oltmanns 氏ニ依ル).

シフホノクラダス科.

體ハ一條ノ單條又ハ分岐セル莖ヲ有シ, 莖ノ下部ハ根ヲ以テ立ツ; 根ハ複細胞ヨリ成リ不規則ニ分岐ス. 莖ハ上方ニハ恰モ中肋ノ如クナリテ體ヲ貫通スルモノニシテ, 一個ノ細胞ヨリ成リ, 強キクビレヲ呈ス, 故ヲ以テ宛モ環ヲ連ネタル如ク見ユ. 體ノ上部ハ團扇狀ニシテ, 殆ド直角ニ且三叉狀ニ屢分岐シテ互ニ癒着セル絲狀細胞ノ網狀ニ連ナレルモノヨリ成リ, 此部ノ細胞ハ一ノ平面ヲナシテ列シ, 各枝ニ一個ノ

横膜ヲ形成ス。第一位ノ枝ノ上端ハ前即チ莖ノ頂端ノ方ニ屈曲シ、次ナル其レト同様ノ枝ト癒着ス；此ヲ以テ葉片ノ緣邊ハ緣ヲ縫ウタルガ如キ觀ヲ呈ス。總テ各部ノ癒着ハ「テナキユラ」ト稱スル付着器ヲ以テス。生殖細胞ハ知ラレズ。

約六種ノ海ニ產スルモノアリテ、オーストラリア、ニウカレドニア、メキシコ灣及カナリー諸島等ニ專ナリ。

本屬モ從來 Valoniaceae 科ノ Anadyomeneae 亞科中ニ置カレタレドモ、今 Oltmanns 氏ノ說ニ從テ Siphonocladiaceae 中ニ置クモノナリ。屬ノ名ハ H. de Struve 氏ノ名譽ノ爲ニ設ケタルモノニシテ、氏ハ中世紀時代ニ獨逸ノ「ハムブルヒ」、「ブレーメン」附近ニ存シタル Hanseatic 聯邦へ露西亞ヨリ使シタル使臣ニシテ博物學ノ保護者タリシ人ナリ。

Struvea tenuis Zanard.

あみは 岡村稱。

第 XL 圖版、7-8 圖。

體ハ極メテ小ニシテ短キ莖ヲ有ス(予ノ標本ニテハ全體約 0.5 cm. アリ)。莖ハ平滑ニシテ環狀ノクビレナク、且分岐スルコトナク葉片ニ近キ所ニ一ノ横膜ヲ有ス。葉片ハ美シキ網ニシテ、心臓形-卵形、乃至三角形等ヲナシ、極メテ纖弱ニシテ；2.5-3 mm. の長サ並ニ幅ヲ有ス。葉片ノ絲狀細胞ハ二回羽狀(予ノ標品ニテハ三回羽狀ナリ)ニシテ、枝及ビ小枝ハ對生ス、節間ノ長サハ徑ノ2-3倍ナリ。

產地：潮線間ニ生ズルまくりノ體上ニ在リ。琉球(黑岩氏)。

分布：ニウギニア。

備考：此處ニ圖說シタル標品ニ於テ網狀部ハ3-4回羽狀ニ分岐シタル細胞ニテ成ル。此點ハ本種ノ二回羽狀ニテ成レルト云フ性質ト一致セザルモノアルヲ以テ或ハ本植物ヲ此種トスルノ誤ナランカヲ思ハシム。或ハ次ニ圖說セル *S. delicatula* ノ幼キモノナランカ。

第XL圖版，7-8圖。7：*Struvea tenuis* Zanard., あみは,ノ體, $\frac{1}{1}^8$.—8：
テナキユラ, $\frac{6}{1}^9$.

***Struvea delicatula* Kuetz.**

Nom. Jap.: *Sainomé-amiha*.

PL. XL, Fig. 9-12.

Struvea delicatula Kuetz. Tab. Phyc' XVI, t. 2, f. 2; Murray e Boodle A Str. and Syst. Account of the Gen. *Struvea* (Ann. of Bot. Vol. II, 1888-89), p. 281, n. 6, t. 16, f. 6 and 8; De Toni Syll. Alg. I, p. 366; 岡村, 日本藻類名彙 p. 192.—*Cladophora?* *anastomosans* Harv. Phyc. Austr. t. 101.

Hab.: Entangled on other algae growing between tide-marks. Riukiu.

PL. XL, Fig. 9-12. Fig. 9. frond of *Struvea delicatula* Kuetz., $\frac{1}{1}^8$.—Fig. 10: attachment of ramuli by tenacula, $\frac{5}{1}^4$.—Fig. 11: a tenaculum, $\frac{39}{1}^0$.—Fig. 12: basal portion of stem, $\frac{5}{1}^4$.

Struvea delicatula Kuetz.

さいのめあみは 岡村稱.

第XL圖版, 9-12圖.

體ハ不規則ニ分岐錯綜セル絲狀ノ匍匐セル部分ヨリ立ツ。體ハ叢生シ、環状ニクビレザル平滑ナル莖ヲ有シ、莖ハ單條又ハ分岐シ、1-2 cm長ク；葉片ハ卵形又ハ三角形ノ網ニシテ、全體ニテ 2.6-5 cm長シ。葉片ヲ構成スル絲狀細胞ハ正シク中肋ノ兩側ヨリ出デテ數回羽狀ヲナシ、枝皆對生ス、而シテ直角ニ出デ、其處此處ニ不規則ニ癒着ス。關節ノ長サハ概ネ其徑ノ2-3倍ナリ。色ハ美キ淡綠色ニシテ、質ハ新鮮ノ時ハ硬ク、乾燥スル時ハ紙ニ付着セズ。

(予ノ得タル標品ハ稍破損セル極メテ小ナルモノナルガ故ニ上記ノ記載ハ参考書ノ記ス所ニ依レリ)。

產地：潮線間ニ生ズル他ノ海藻ト混在セリ。琉球(黒岩氏)；臺灣南岸, (Long-Kiau (Warburg, Heydrich)).

分布：グアデループ, セーラン, オーストラリア, ニウカレドニア, シヤム灣。

第XL圖版, 9-12圖. 9: *Struvea delicatula* Kuetz., さいのめあみは, ノ體, $\frac{18}{1}$.—10:「テナキユラ」ヲ以テ小枝ノ互ニ癒着スル狀, $\frac{54}{1}$.—11: テナキユラ, $\frac{390}{1}$.—12: 莖ノ下部, $\frac{54}{1}$.

• **Dictyosphaeria favulosa** (Mert. ?) Decsne.

Nom. Jap.: *Kikko-gusa*.

PL. XL, Fig. 13-24.

Dictyosphaeria favulosa (Mert. ?) Decaisne Class. des Alg. Calcif p. 32; Harv. Ner. Bor.-Amer. III, p. 50, t. 44, B; Kuetz. Sp. Alg. p. 512; Id. Tab. Phyc. Vol. VII, t. 25, 1; J. Ag. Till Alg. Syst. III, p. 118; Askenasy Gazelle p. 8, Taf. II, f. 1-5; Heydr. Beitr. z. Kenntn. d. Algenfl. v. Kais.-Wilh.-Land (Ber. d. d. bot. Gesells., Bd. X) p. 466, Taf. XXIV, f. 6-10, Taf. XXV, f. 11-13; 岡村, 日本藻類名鑑 p. 191.

Hab.: On rocks between tide-marks. Riukiu, Hiuga, Nogamashima in Amakusa Isls., Cape Nomo (Prov. Hizen), Urado and Kashiwajima (Prov. Tosa), Abu (Prov. Awa), Kushimoto (Prov. Kii) Hamashima (Prov. Shima), Tago (Prov. Idzu).

PL. XL, Fig. 13-24. Fig. 13: fronds of *Dictyosphaeria favulosa* Decsne, from Riukiu, in nat. state and size.—Fig. 14: same from Abu in Prov. Awa (col. K. Yendo), $\frac{1}{2}$.—Fig. 15: one of fronds set free and other two coalesced together, $\frac{5}{4}$.—Fig. 16: one of smaller fronds magd., showing root-like attaching organs, $\frac{54}{1}$.—Fig. 17: very young frond, 2 mm. in height, $\frac{8}{1}$.—Fig. 18: longitudinal section of the same, showing the decay of inner cells, $\frac{8}{1}$.—Fig. 19: surface-view of two cells of frond seen from the inner side through the wall, showing the arrangements of tenacula, $\frac{54}{1}$.—Fig. 20: portion of the same magd., $\frac{390}{1}$.—Fig. 21: mode of attachment of 2 cells of frond by the formation of tenacula from outer surfaces of both cells, $\frac{600}{1}$.—Fig. 22: two cells, *a* and *b*, of a frond coming into cohesion by forming three tenacula, *c*, still leaving spaces between both cells, $\frac{220}{1}$; two cells are apart from each other at the distance of 20 μ .

—Fig. 23: similar case as in Fig. 22, showing the beginning of a young tenaculum, a, $\frac{600}{1}$.—Fig. 24: a tenaculum, $\frac{390}{1}$.

Dictyosphaeria Decaisne 1842.

きつかうぐさ属.

CLADOPHORACEAE (?) しほぐさ科(?).

體ハ石灰質ヲ被ムルコトナク, 球狀又ハ不規則ナル塊狀ヲナシ, 後往々破壊スル爲ニ殼狀トナリ又ハ膜狀ニ擴ガリ, 根ノ如キ付着器ヲ以テ他物ニ固着ス. 始メハ數層ノ細胞ヨリ成リテ實質ナレドモ, 後内部ノ細胞漸次死滅シ解頽スルニ依テ概ネ一層ノ細胞ヨリ成レルニ至ル; 此細胞ハ多角形ニシテ多少外面ノ方ニ隆起ス. 又此外部ノ細胞ヨリ枝ナル細胞ヲ生ジ, 此枝互ニ癒着シテ一ノ塊狀ヲナシ, 後更ニ其内部ノ細胞解頽シテ中空トナル. 生殖法ハ詳ナラズ.

約三種アリテ熱帶ノ海ニ産ス; オーストラリア, 太平洋諸島其主產地ナリ.

備考: 分類上ノ位置ニ就テハ本屬ハ從來 Valoniaceae ニ置カレタリ; 然レドモ Otmanns 氏ハ Valoniaceae 中ニ置カレタル諸屬中 Anadyomene, Microdictyon, Boodlea, Rhipidiphyllon 等ヲ Cladophoraceae ニ移シ, Dictyosphaeria ハ Harvey, J. Agardh 等ノ大家等シク此處ニ列記シタル諸屬ト親縁アルコトヲ認ムルヲ以テ是モ亦 Cladophoraceae 中ニ收メタリ. 今氏ノ説ニ隨テ此科中ニ置ク; 然レドモ未ダ一定シタルモノニアラズ, 故ニ疑ヲ存ス.

近頃 Murray 及 Crosby ノ二氏ハ Dictyosphaeria ニ就テ左ノ如キ説ヲナスト Otmanns 氏ノ藻類學書 p. 261 ニ引用セリ; 即チ: Schmitz 曰ク “Dictyosphaeria favulosa ノ幼者ハ不規則ナル球狀體ヲナセル中實ナル細胞體ナリ.....此細胞體ハ大ナル細胞ヨリ成リテ不規則ニ分岐セル細胞列ヲナシ, 其下部ナル付着點

ヨリ上方ニ扇狀ヲナス;其各細胞ノ互ニ癒着シテ全體ヲ形成スルコト,恰モ大ナル細胞ヨリ成レル Cladophora ニ類シ,若クハ小サキ細胞ヨリ成レル Valonia ニ類ス……而シテ其各細胞ハ極メテ小ナル付着細胞ヲ生ジテ互ニ癒着ス:—(以上ハ多分 C. M. Crosby Observation on Dictyosphaeria (Minnesota Bot. Studies 1903; 3 Ser. 1, p. 61) ノ一節ナラン).

屬ノ名ハ Dictyon (網) + Sphaera (球) トヨリ成ル,即チ細胞ノ相集マレル狀恰モ網ノ如クナレバナリ.

Dictyosphaeria favulosa (Mert. ?) Decsne.

きつかうぐさ 岡村稱.

第XL圖版, 13-24圖.

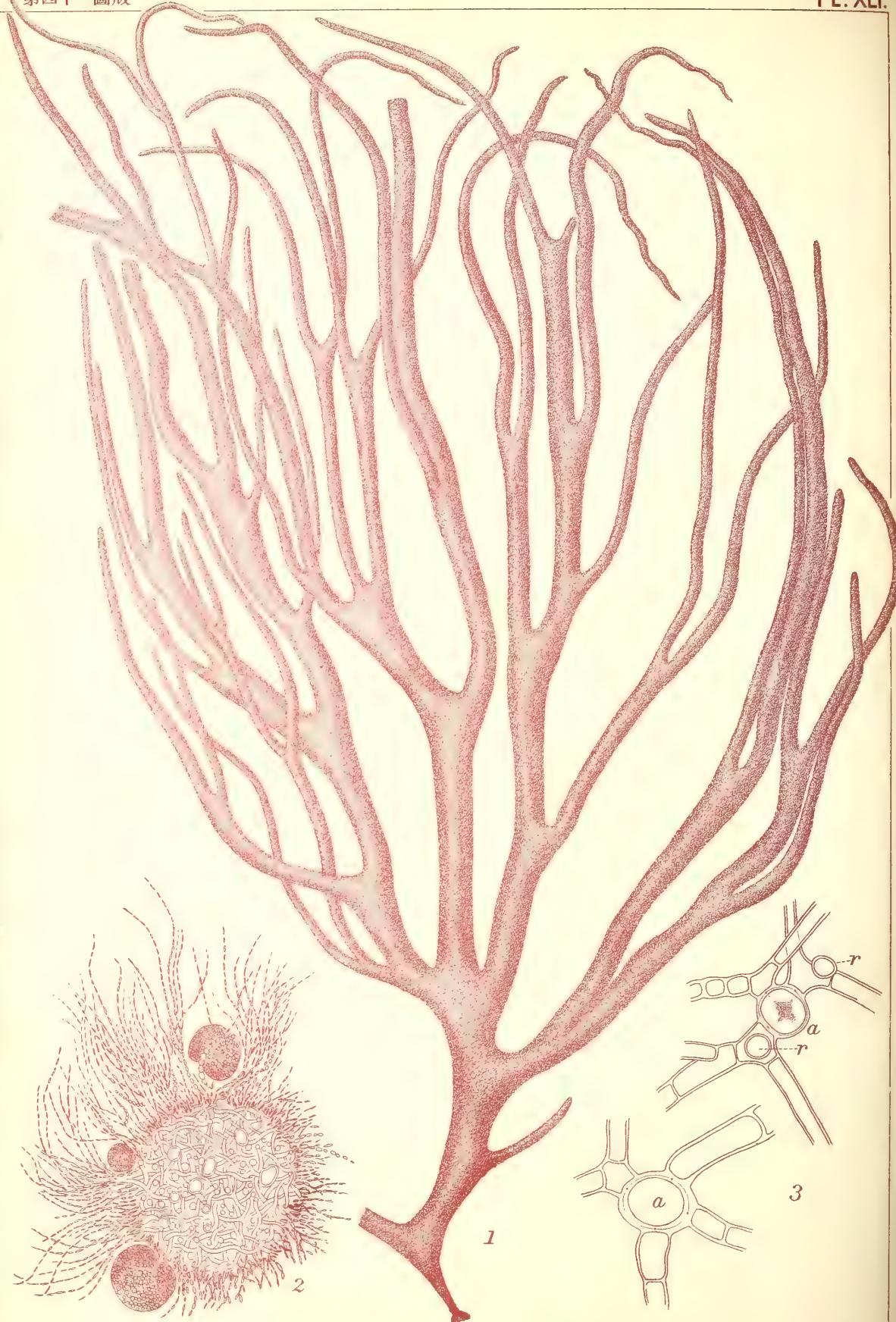
體ハ多少不規則ナル球狀ニシテ,下部ノ細胞ヨリ根ヲ生ジテ他物ニ付着シ,多數相集合ス,徑 0.5-3 cm. アリ. 體ハ始メ球狀ニ團集セル實質ナル細胞體ニシテ,下部ノ細胞根ノ如キ突起ヲ生ジテ他物ニ付着ス;後内部ノ細胞ハ解頽シテ空虛トナル. 此空虛トナル頃ノ體ノ大サニ就テハ第 17-18 圖ニ示シタル如ク,其大サ僅ニ 2 mm. の高サアルモノニ於テ既ニ然リトス;然レドモ他ノ學者ノ研究シタル所ヨリ見ルモ,之ヨリ遙ニ大ナル球ニテ多數ノ細胞ヨリ成レルモノ、内部漸次空虛トナルモノアルヲ以テスレバ,必ズシモ予ノ見タル程小ナルモノニ於テ既ニ空虛トナルモノ、如シト限レルニハアラザルベシ. 兎ニ角初メ實質ナル球モ後空虛トナリ,或ハ其一部破壊シテ鉢狀トナリ,或ハ殼狀トナル,而シテ斯ノ如キ體ハ概ネ一層ノ細胞ヨリ成レドモ,亦數層ノ細胞ヨリ成レルモノナキニアラザルガ如シ. 又斯ノ如キ狀態ニナリタル後,更ニ新規ノ部分ヲ生ジテ體ヲ增大スルコトモアリト見エタリ. 體ヲ構成スル細胞ハ只單ニ細胞膜壁ヲ以テ相接觸ヘル

ノミニアラズシテ, 第22-23圖ニ示ス如ク, 一細胞ヨリ「テナキユラ」トナルベキ細胞, *a*, ヲ分裂シ, 此細胞其相隣レル細胞ニ付着シテ以テ相互ヲ結合ス。 「テナキユラ」ノ生ズル狀ハ第19-20圖ニ示ス如ク, 少少規則正シク横ニ數列ヲナシ, 又第21圖ニ示ス如ク相隣レル細胞ヨリ之ヲ生ズルヲ普通トス; 時ニハ二三個相並ンデ一細胞ヨリ出ルコトナシトセズ。 色ハ新鮮ノ時ハ濃キ綠色ナレドモ生白キ閃光ヲ有スルヲ以テ淡青色ヲナス。 質ハ新鮮ノ時ハ極メテ硬ク, 乾燥スルトキハ膜質トナリ, 細胞ハ肉眼ニテ殆ド網ノ目ノ如ク見ニ。

產地: 潮線間ノ岩石上ニ生ズ。 琉球, 日向, 天草野釜島, 野母崎, 土佐浦戸及柏島, 阿波阿部(遠藤), 串本(遠藤), 志摩濱島, 伊豆田子村尊ノ島(大石)。

分布: 太西洋溫暖部, 印度洋, 太平洋。

第XL圖版, 13-24圖。 13: 琉球產 *Dictyosphaeria favulosa* Decne., きつかうぐさノ自然ノ狀態, $\frac{1}{1}$ —14: 阿波國阿部產ノモノ(遠藤氏採), $\frac{1}{1}$ —15: 體ノ一ハ離レ, 他ノ二個ハ互ニ癒着セルモノ, $\frac{5}{1}$ —16: 小サキ體ノ一ヲ廓大シテ, 根ノ如キ付着器ヲ示ス, $\frac{54}{1}$ —17: 2 mmノ高サアル極テ幼キモノ, $\frac{8}{1}$ —18: 同上ノ體ヲ縦斷シテ内部ノ細胞ノ破壊シ行ク狀ヲ示ス, $\frac{8}{1}$ —19: 體ノ二個細胞ノ表面ヲ其内面ヨリ細胞膜ヲ透シテ見タルモノニシテ, 「テナキユラ」ノ排列スル狀ヲ示ス, $\frac{54}{1}$ —20: 同上ノ一部, 廓大, $\frac{390}{1}$ —21: 體ノ二個細胞ノ表面ヨリ互ニ「テナキユラ」ヲ形成シテ癒着スルモノ, $\frac{600}{1}$ —22: 體ノ二個細胞, *a* ト *b*, ガ三個ノ「テナキユラ」, *t*, ヲ形成シテ癒着スルモノ; 二個細胞ハ尙ホ 20 μ ノ距離ノ間隙ヲ存ス,—23: 第22圖ト同様ノモノニシテ, 幼キ「テナキユラ」, *a*, ノ今將サニ成ラントスルモノ, $\frac{600}{1}$ —24: テナキユラ, $\frac{390}{1}$.



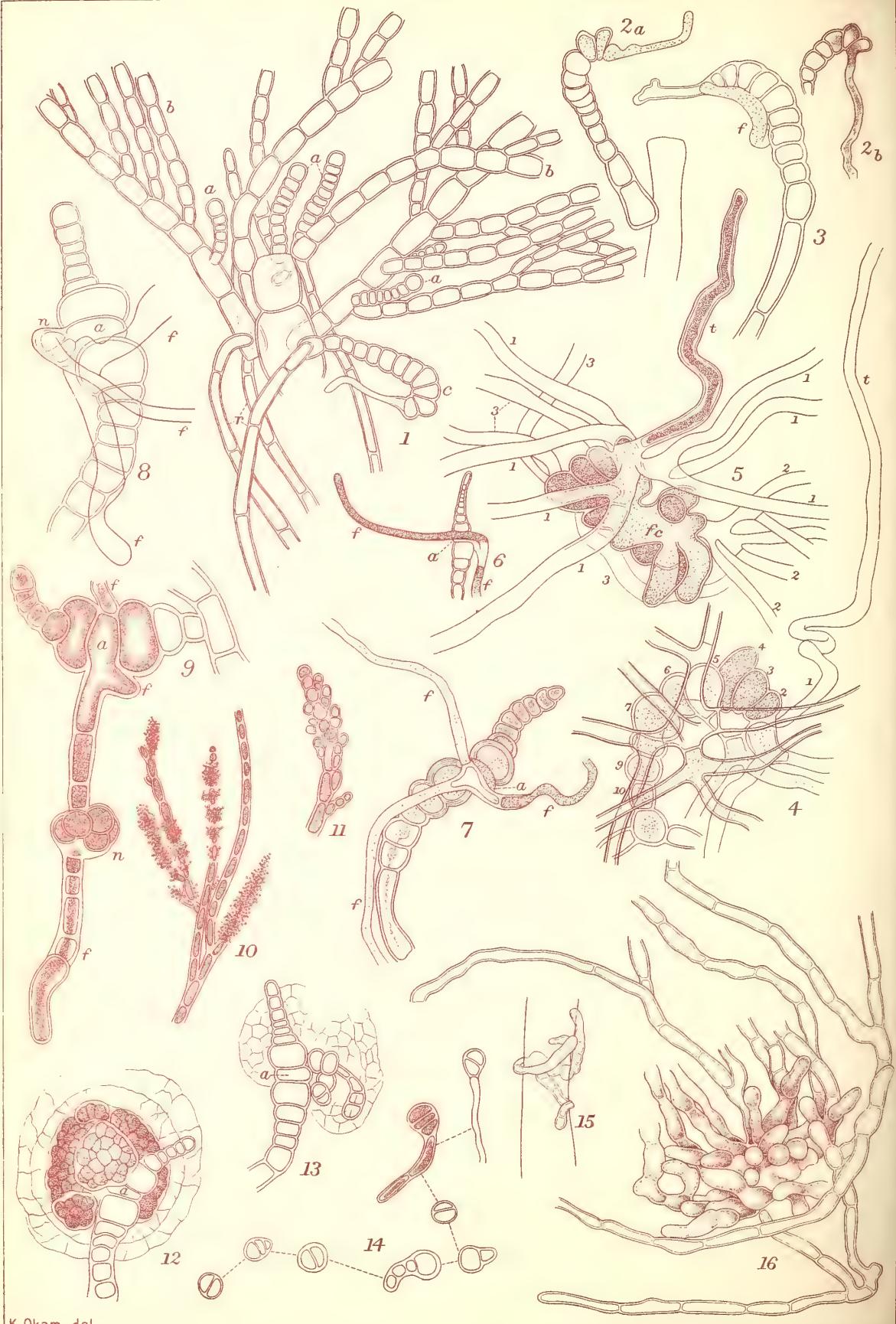
K. Okam. del.

Dudresnaya japonica Okam. sp. n. ひびらうど.

3

1

2



K. Okam. del.

8 12 9 10 13 11 14 1 7 6 15 2a 5 16 4 3 2b

Dudresnaya japonica Okam. sp.n. ひびらうど。

Dudresnaya japonica Okam. sp. nov.

Nom. Jap.: *Hi-birōdo*.

PL. XLI-XLII.

Dudresnaya japonica Okam. 日本藻類名彙, p. 92.

Diagn. Fronds very lubricous, almost cylindrical through the whole length or the lower portions often decidedly compressed, gradually or abruptly tapering below into a short stem, irregularly dichotomous, here and there with tri-polychotomous segments, 15-30 cm. high, 3-5 mm. broad in thicker part. Branches vermicular standing at some distances, rising from roundish or acute axils, gradually tapering above into slender and roundish apices. Antheridia transformed from the cells of articulations of the peripheral filaments. Cystocarps globular, slightly reniform, being placed near the base of peripheral filaments. Dioecious. Tetraspores unknown. Colour red.

Hab.: Probably in calm waters. Cape Nomo (Prov. Hizen), Futaye (Isl. Amakusa), Prov. Shima, Prov. Sagami. Fruit:—Spring.

Development of Cystocarp: I have been able to study nearly all stages in the development of cystocarps from the procarp though without any attempt to observe the internal nucleal changes. In their general features, the fusion of the ooblastema filament and the auxiliary-cell and the subsequent development of cystocarps very much resemble those described and figured for *Dudresnaya coccinea* by Bornet and Thuret and by Oltmanns; more especially they resemble those which have recently been studied by Howe in *D. crassa* Howe Phycological Studies II, (Bull. Torr. Bot. Club, 32, 1905), p. 572, Pl. 28 and Pl. 29 fig. 12-26.

Carpogonial branch is simple, consisting of about 10 subspherical or somewhat discoidal cells (of which lower 3-4 cells are sterile) in a single series, its apex slightly deflexed and terminating in the much elongated, curved or nearly straight trichogyne. Some two cells mostly standing at the 4th to 5th from the carpogonium are larger than the remaining ones and are full of contents. Antheridia are produced on the plant different from that having procarps; that is the plant is dioecious. They are linear or slender, elongated fusiform in outline, being developed from the cells of articulations of the peripheral filaments.

After fertilization a longer or shorter process (fig. 3, *f*) is put forth from the carpogonium to fuse with some cells in the carpogonial branch. This fusion of cells proceeds in greater or less extent, as it is seen from fig. 3-5. The contents of cells thus fused become more homogenous and translucent. From the fused cell or cells thus formed very abundant, simple or branched and jointed ooblastema filaments are emitted.

Auxiliary cell-branches are very abundantly prepared, being composed of 5-9 cells slightly enlarged toward the base, and terminating in a multiarticulate prolongation similar to that of the other peripheral filaments or often remaining shorter. Auxiliary cell occupies the middle of the enlarged portion of the branch and has little more than half the diameter of the two immediately adjacent cells; the latter are very much inflated and rich in contents.

The union of the ooblastema filament set forth from the fused cell always takes place with a single definite and highly specialized auxiliary cell which lies between the two larger ones, as stated above. The contents of this cell appear at first very much like that of the adjacent cells, but as it matures, it undergoes a change, becoming more homogenous and translucent; at the same time, the auxiliary

cell and the two neighboring cells become enveloped in an especially thick layer of mucus as shown in fig. 7-8.

An ooblastema filament after having fused with an auxiliary cell again travels far more distance, by simple prolongation or by branching, to enter into union with still other ones (fig. 6-9). At the place where it comes in fusion with an auxiliary cell, spores are soon produced (fig. 8); and in rarer cases they are formed in the ooblastema filament at some distances from the auxiliary cell already acted upon (fig. 9).

In all the articulations of gonimoblastic filaments, carpospores are formed in succession forming a few nucleoli which are aggregated into a large globular or slightly reniform mass. When the carpospores are set free the wall of cells in which they were lodged appear like mucilaginous network.

Spores soon germinate often within the mother body even staying in cystocarp. After the division of spore as it is illustrated in fig. 14, irregularly branched filamentous embryos are formed which branching more and more form an aggregated mass from which numerous elongated branching filaments are emitted on all sides (fig. 16). Plant of this embryonal stage soon develops into a young frond.

Remarks: The present plant, which agrees in the character of auxiliary cell with *D. coccinea* (Ag.) Crouan and more especially with *D. crassa* Howe, is very much closely related to the latter in having the highly specialized auxiliary cell. It, however, differs from that species in having subpinnate ramification of the peripheral filaments and in the subdichotomous ramification of frond.

Pl. XLI. Fig. 1: frond of *Dudresnaya japonica* Okam. sp. nov., $\frac{1}{1}$.—Fig. 2: cross-section of frond, $\frac{5}{1}$.—Fig. 3: axial cells, a, a , with verticillate branches; r, r , rhizoids; $\frac{390}{1}$.

Pl. XLII. Fig. 1: peripheral filaments, *b*, *b*, verticillately arising from axial cells, showing the mode of construction of frond; *a*, *a*, beginning of auxiliary cell branches; *c*, carpogonial branch; *r*, rhizoids; $\frac{390}{1}$.—Fig. 2: *a-b*, procarps, $\frac{390}{1}$.—Fig. 3: carpogonium just fertilized; *f*, filamentous process set forth from the carpogonium going to fuse with some cells in the branch, $\frac{600}{1}$.—Fig. 4: ooblastema filaments put forth from somewhat fused cells of the carpogonial branch, $\frac{1-10}{1}$; *t*, trichogyne; $\frac{600}{1}$.—Fig. 5: fusion of the cells of the carpogonial branch, and ooblastema filaments; *fc*, fused cell; *1*, *2*, and *3* indicate respective groups of ooblastema filaments; *t*, trichogyne; $\frac{600}{1}$.—Fig. 6: auxiliary cell, *a*, just united with an ooblastema filament, *f*, $\frac{220}{1}$.—Fig. 7: similar case as fig. 6, showing thickened wall of cells of auxiliary cell-branches, $\frac{390}{1}$.—Fig. 8: beginning of the development of nucleus, *n*, from a fertilized auxiliary cell, *a*; *f*, *f*, same as other figs.; $\frac{600}{1}$.—Fig. 9: young nucleus developed on an ooblastema filament at some distance from the auxiliary cell, *a*, $\frac{600}{1}$.—Fig. 10: antheridia, $\frac{220}{1}$.—Fig. 11: development of young antheridia, $\frac{600}{1}$.—Fig. 12: cystocarp; *a*, fertilized auxiliary cell; $\frac{390}{1}$.—Fig. 13: carpospores germinated within cystocarp; *a*, same as fig. 12, $\frac{390}{1}$.—Fig. 14-15: different stages of the germination of carpospores, $\frac{390}{1}$.—Fig. 16: far more advanced stage of the embryo, $\frac{600}{1}$.

Dudresnaya Bonnemaison 1822.

ひびらうど属.

DUMONTIACEAE. りうもんさう科.

體ハ概子圓柱狀, 密ニ分岐シ, 甚シク柔粘ニシテ, 明ニ絲組織ヨリ成ル; 即チ體ノ上部ハ關節セル細胞ヨリ成レル一條ノ中軸ヲ存シ, 其頂端ハ横ニ分裂セル頂細胞トナリ, 各方丁ニ向テ

輪生枝ヲ發シ、輪生枝ハ外方ニ向テ屢々種々ニ分岐シ以テ皮層枝ヲ形成ス；此皮層ノ枝緩ク相結合シテ以テ皮層ヲ成ス皮層ヲ成セル枝ノ基部(又ハ其各部)ヨリ根様絲ヲ發生シ、根様絲ハ體ノ下部ノ方ニ縱走ス。體ノ下部ニ在テハ中軸細胞ハ極メテ多數ノ根様絲ヲ以テ包圍セラレ、根様絲ハ漸次其數ト太サトヲ増スヲ以テ或ハ太ク或ハ細ク、大小一ナラズ；故ヲ以テ體ノ下部ノ横斷面ニテハ孰レカ原來ノ中軸細胞ナルカヲ識別スルニ苦シム、而シテ漸次根様絲ノ數ト大サトヲ増スガ爲ニ其部ハ增厚シ、皮層枝ハ外方ニ壓出セラル。——四分胞子囊ハ(從來知ラレタル所ニテハ)環狀ニ分裂シ、散在ス。胎原列及助細胞枝ハ皮層中ニ多數ニ存シ、助細胞ハ助細胞枝ノ頂端又ハ中央部ニ形成セラル。囊果ハ充分ニ被包セラレテ皮層中ニ散在シ、小ナリ；仁ハ密ニ團集シ 1-2 塊ノ小仁ヨリ成リ、各小仁餘リ多カラザル細胞ヨリ成リ、其各細胞殆ド皆胞子トナル。

模範トスペキモノハ 2 種ニシテ共ニ歐洲ノ海ニ產ス。D. coccinea Bonn. ハ助細胞ヲ助細胞列ノ中央部ニ有スルモノニシテ太西洋暖部ノ歐洲方面ニ產シ；D. purpurifera J. Ag. ハ頂端ニ助細胞ヲ有スルモノニシテ地中海及アドリアチツク海ニ產ス。

Dudresnaya japonica Okam. 新種。

ひびらうど 岡村稱

第 XLI-XLII 圖版。

性質。體ハ甚シク柔粘ニシテ、全部殆ド圓柱狀ヲナシ又ハ體ノ下部往々明ニ扁圓ナルコトアリ、而シテ體ノ下部ノ方ニ或ハ急ニ或ハ徐々ニ細クナリテ短キ莖ヲナシ、不規則ニ又

狀ニ分岐シ，其處此處ニ三叉乃至多叉狀ヲナシ，15-30 cm. 高ク，太キ部分ニテ 3-5 mm. 太シ。枝ハ蠕蟲狀ヲナシ，少距離ヲ距テ立チ，腋圓ク又ハ銳角ニシテ，漸次上方ニ細ク，圓キ頂端ニ終ル。——四分孢子囊ハ未詳。精子器ハ皮層枝ノ關節ノ細胞ヨリ變形シテ細長キ紡錘狀ヲナシ，雌雄異株ナリ。囊果ハ球狀又ハ球狀—腎臟形ニシテ皮層枝ノ基部ニ近ク置カル。色ハ紅色ナリ。體ハ紙ニ固着ス。

產地：多分靜穩ナル所ニ產スルナルベシ。野母崎(肥前)，志摩，相模。

囊果ノ形成：予ハ幸ニシテ胎原細胞ヨリ囊果ノ形成セラル、順序ヲ殆ド餘ス所ナク研究スルコトヲ得タリ、尤モ細胞内ニ起ル核ノ變化等ニハ何等注意スル所アラズ。其大體ニ就テ、オーブラステマ絲ト助細胞トノ癒合及ビ之ニ次テ起ル囊果發育ノ狀況ハ曩ニ Bornet 及 Thuret 氏後 Oltmanns 氏ガ Dudresnaya coccinea ニ就テ圖說シタルモノト酷似シ、又近頃 Howe 氏ガ米國產ノ一種 *D. crassa* ニ就テ氏ノ Phycological Studies II (Bull. Torr. Bot. Club, 23, 1905) p. 572, 28-29 圖版, 12-26 圖ニ圖說シタルモノト酷似ス。

胎原列ハ單條ニシテ、約 10 個ノ稍球狀ナル又ハ稍盤狀ナル細胞ノ一列ニ連ナレルモノヨリ成リ、(其内下部ノ 3-4 個ノ細胞ハ中性ナリ) 其上部ハ少シク外方ニ反リ、甚シク長キ受精毛ヲ戴キ、受精毛ハ屈曲シ又ハ殆ド真直ナリ。胎心細胞ヨリ約于 4-5 番目ノ二個細胞ハ他ノモノヨリ多少大ニシテ內容ニ富ム。精子器ハ胎原細胞ヲ有スル體トハ別ノ植物ニ形成セラル、即チ雌雄異株ナリ；而シテ線狀又ハ細長キ紡錘狀ニシテ皮層枝ノ關節細胞ヨリ形成セラル。

受精シタル後、胎心細胞ヨリ一個ノ長キ又ハ短キ絲狀突起ヲ出シテ其列ノ或數個ノ細胞ト癒合ス。此癒合ハ、第 3-5 圖

ニ示ス如ク、僅少ノ細胞ニ止ルコトアリ或ハ多クノモノニ及ブコトアリ。癒合シタル細胞ノ内容ハ平等ニシテ稍透明トナル。斯クテ癒合シタル一個又ハ數個ノ細胞ヨリ單條又ハ分岐セル「オーブラステマ」絲ヲ多數ニ發生ス;此絲ハ所々ニ隔膜ヲ以テ分タル。

助細胞列ハ極メテ多數ニ形成セラレ、5-9個ノ細胞ヨリ成リ、此細胞ハ列ノ基部ノ方ニ少シク膨大シ、列ノ上部ハ多數ノ關節ヨリ成レル枝ニ伸ビ、其狀皮部ヲ形成スル枝ニ類ス;或ハ又往々短キコトアリ。助細胞ハ助細胞列ノ膨大セル部分ノ中央ヲ占メ之ト隣接セル二個細胞ノ直徑ノ半ホドノ大サヲ有ス;此二個細胞ハ甚シク膨大シテ内容ニ富ム。

胎原列ノ細胞ノ癒合シタルモノヨリ發出セル「オーブラステマ」絲ハ、上ニ云ヘル如ク二個ノ大ナル細胞ノ間ニ存スル特殊ノ細胞ナル一個ノ助細胞ト常ニ必ズ癒合ス。此細胞ノ内容物ハ始メハ其附近ノモノト同様ニ見ユレドモ、成熟スルニ至レバ、遙ニ平等ニシテ稍透明トナリ、同時ニ助細胞及之ニ隣レル二個ノ大ナル細胞モ殊ニ厚キ粘膜ヲ以テ蔽ハル、ニ至ルコト第7-8圖ニ示ス所ノ如シ。

「オーブラステマ」絲ハ一個ノ助細胞ト癒合シタル後單ニ伸長スルカ又ハ枝ヲ出シテ更ニ遠キニ及ボシ以テ他ノ助細胞ト癒合セントス(6-9圖)。其助細胞ト癒合シタル所ニハ直ニ果胞子ヲ形成ス(8圖);而シテ稀ニハ一旦受胎シタル助細胞ヲ去ル或距離ノ所ニ於テ果胞子ヲ作ルモノアリ(9圖)。

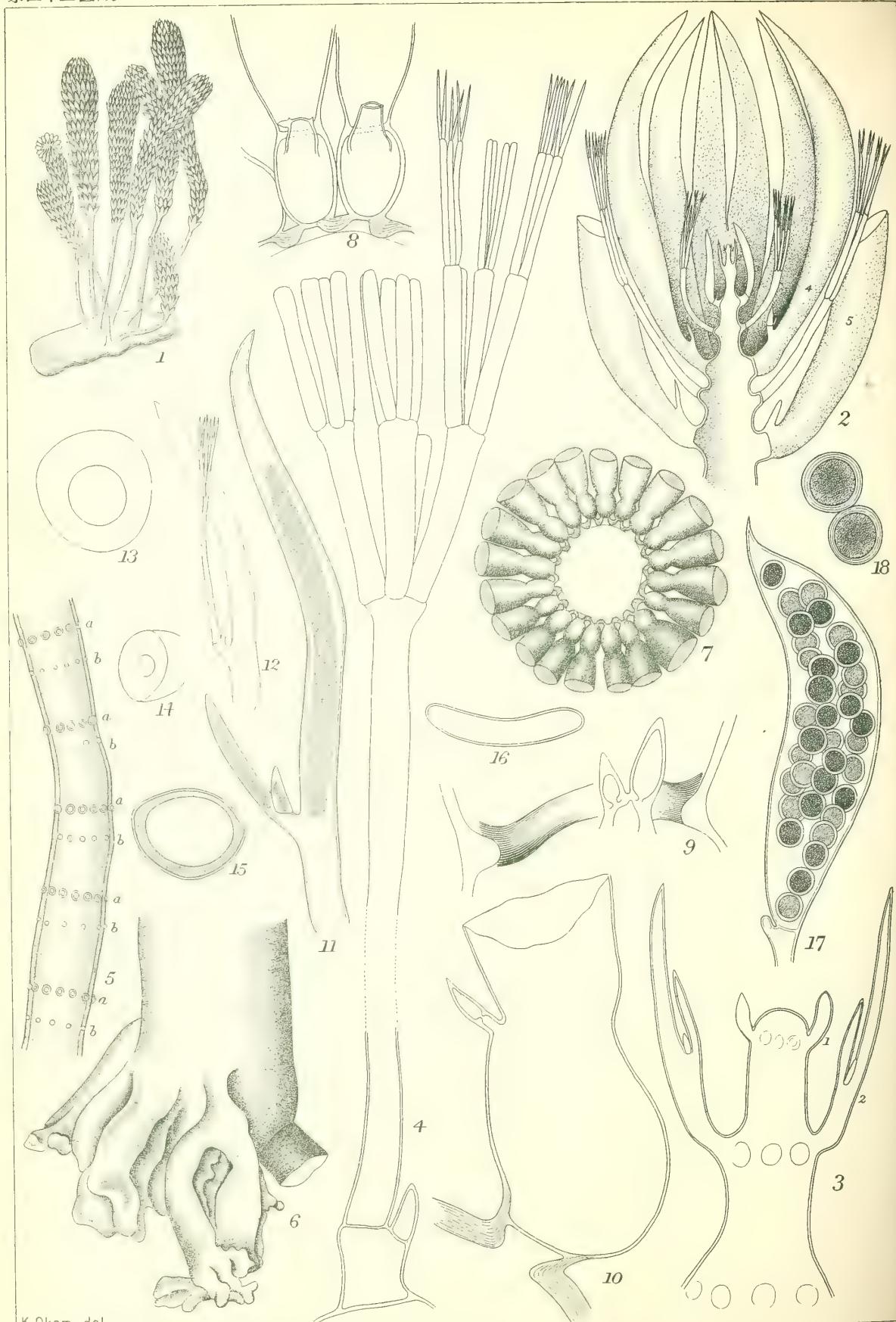
成胞絲ノ各關節細胞ハ總テ果胞子トナリ、果胞子ハ順次ニ形成セラレ、數個ノ小仁ニ團集シ、小仁相集リテ一個ノ大ナル球狀又ハ少シク腎臟形ノ團塊ヲナス。果胞子ノ游離シタル後、其之ヲ包藏セル細胞ノ膜ハ粘膜ノ網ノ如クナリテ殘留ス。

胞子ハ直ニ萌發シ、往々母體ニ於テシ、或ハ囊果ノ内ニアリテサヘ萌發スルモノアリ。第14圖ニ示ス如ク胞子數回分裂シタル後、不規則ニ分岐セル絲狀ノ胚植物ヲ形成シ、此モノ尙ホ益々分岐シテ一ノ團塊ヲナシ、此ヨリ多數ノ長キ分岐セル絲狀ノ枝ヲ各方面ニ發出ス(16圖)。此胚植物ハ後一個ノ幼キ體トナルナリ。

備考：本植物ハ助細胞ノ介生的性質ニ依テ *D. coccinea* (Ag.) Crouan ト一致シ、殊ニ *D. crassa* Howe トハ其特殊ナル助細胞ヲ有スル點ニ於テ極メテ親密ナル類縁ヲ有ス；然レドモ、本種ハ該種ト異ナリ、皮層ノ絲狀枝ハ羽狀ニシテ該種ノ如ク叉狀ナラズ、又體ノ分岐法モ叉狀ニシテ該種ノ如ク羽狀ナラズ。是レ本植物ヲ新種トシタル所以ナリ。

第XLI圖版。1: *Dudresnaya japonica* Okam., ひゅらうど、ノ體、
1—2: 體ノ横斷面、 $\frac{54}{1}$ —3: 中軸細胞、 a, a 、ヨリ輪生枝ヲ出シ、之
ヨリ根様絲、 r, r 、ヲ出ス狀、 $\frac{390}{1}$ 。

第XLII圖版。1: 二個ノ細胞ヲ以テ示セル中軸ヨリ b, b 、
ナル皮層枝ヲ輪狀ニ出スモノニシテ、體ノ構成セール一班ヲ示
セルモノ； a, a 、助細胞列ノ始メ； c 、胎原列； r 、根様絲； $\frac{390}{1}$ —
2: $a-b$ 、胎原列、 $\frac{390}{1}$ —3: 今方ニ受胎シタル胎心細胞ヨリ絲狀突
起ヲ出シテ其列中ノ或細胞ト癒合セントスルモノ、 $\frac{600}{1}$ —4: 胎
原列(I-IOノ符號ヲ以テ示シタルモノ)中ノ幾分癒合シタル細
胞ヨリ「オープラステマ」絲ヲ出シタルモノ； t 、受精毛； $\frac{600}{1}$ —
5: 胎原列中ノ細胞ノ癒合シタルモノ及ビ「オープラステマ」絲；
 f_1 、癒合シタル細胞；1, 2, 3, 等ノ符號ハ「オープラステマ」絲ノ各組
即チ夫々ノ箇所ヨリ出タル一組ヅ、ヲ示ス； t 、受精毛； $\frac{600}{1}$ —
6: 方ニ「オープラステマ」絲、 f, f 、ト癒合シタル助細胞、 $a, \frac{220}{1}$ —
7: 6圖ト同様ノ狀態ニシテ助細胞列ノ細胞ノ膜ノ增厚セルヲ示



K.Okam. del.

5 13 1 14 15 12 6 11 8 4 16 10 9 7 17 3 2 18

Halicoryne Wrightii Harv. いそすぎあ。

スモノ、^{390.}—8: 受精シタル助細胞, a, ヨリ仁, n, ノ發育スル初步; f, f, 他ト同ジ, ^{600.}—9: 助細胞, a, ヨリ或距離ニ於テ「オーブラステマ」絲ノ一部ニ幼キ仁ヲ形成スルモノ, ^{600.}—10: 精子器, ^{220.}—11: 幼キ精子細胞ノ形成スルモノ, ^{600.}—12: 囊果; a, 受胎シタル助細胞, ^{390.}—13: 囊果ノ内ニ於テ果胞子ノ萌發シタルモノ; a, 12圖ニ同ジ, ^{390.}—14-15: 果胞子ノ萌發スル種々ノ狀態, ^{390.}—16: 胚植物ノ餘程發育タシルモノ, ^{600.}

Halicyrne Wrightii Harv.

ACETABULARIEAE (DASYCLADACEAE).

PL. XLIII.

Nom. Jap.: *Iso-sugina*.

Halicyrne Wrightii Harv. Char. New. Alg. Jap. in Proceed. Amer. Acad. vol. IV, p. 333; J. Ag. Till. Alg. Syst. VIII, p. 159, Tab. V, fig. 1-5; Cramer Ueber Halic. Wrightii p. 1-13, fig. 1-9. (Viertel-jahrsschr. d. nat. Ges. Zürich. Jahrg. XL, 1895); De Toni Syll. Alg. I, p. 423; 岡村, 日本藻類名彙 p. 194.—*Pleiophysa spicata* (Kuetz.) Sond. in F. Muell. *Fragm. Phyt. Austr. suppl.*; J. Ag. Till. Alg. Syst. VIII, p. 159; *Polyphysa spicata* Knetz. Tab. Phyc. XVI, t 1, f. 2.

Fronds are simple, clavate and thickly calcified, each standing with a slender cylindrical stem from whose lower extremity a whirl of roots is emitted, and attain the height of 6-7 cm. The stem is naked or bared of any leaves for 10-20 mm. from the lower extremity, and thence upwards it is densely imbricated by numerous (30 or more) whorls of fertile leaves. The naked portion of stem is marked with many rings of roundish scars, of which there are two sorts, the larger

and the smaller. The larger scars indicate the insertions of already dropped fertile leaves, while the smaller, of the sterile, that is "internodiale Haare" of Cramer. The rings of the smaller scars stand near to the upper larger ones, and the larger and smaller ones come in the regular alternation. The number of scars in each ring of both sorts is not definite according to the position and thickness of the stem, but in general that of scars in the larger ones is always a little more numerous than that of those in the smaller, it amounting from some 12 to 15 or more in the bared portion.

In the growing portion of frond the sterile leaves that is hairs are seen, as in the fig. 2, at 4th (between 3 and 4 in the fig.) and 6th node (between 4 and 5), from the apex, while those standing on the upper 3 (1-3) nodes are all young fertile leaves. Below the 6th node, the sterile leaves are usually degenerated and the most part of them is decayed off, as it is illustrated in J. Ag. l.c. fig. 4, b. They are, when perfect, 3-4 times polychotomous with 4-5 cylindrical cells at every segment, which gradually decrease in thickness upward. A full grown hair has at the base a short pedicel with a smaller cell sometimes attached to it, which may be considered as another rudimentary hair.

The fertile leaves, which are entirely free from each other, are much longer and larger than the sterile, and full of chlorophyll grains. They are differentiated, near the base, by a slight constriction, into a short pedicel-like portion (the "Basilarwurst" of Cramer) and scimitar-shaped body. The latter is a sack which is not terete, but more or less compressed, and especially so in the median portion. It is slightly curved outward facing the concave side to the stem, and thickens at the apex into a short spine which is slightly bent outward, that is turned away from the stem. When young, the scimitar-like portion is almost cylindrical, being attenuated above and slightly curved. The number of fertile leaves in a whirl amounts to 20 or

more according to their position. They stand at the beginning in an open communication with the stem; but more afterward, the wider opening is gradually narrowed by thickening of wall around it, leaving a narrow central aperture which becomes frequently closed by subsequent thickening.

The pedicel of fertile leaves has a slight protuberance at the inner side which Cramer has described as "Buckel." It recalls the corona superior of *Acetabularia*. On the apex of the protuberance, there is a 2-3 times polychotomous hair (fig. 12; i.e. the "ligulare Haar" of Cramer); but not seldom it remains in the form of a simple, cylindrico-attenuated cell. The hair, which is much shorter and slenderer than the sterile leaves, is soon dropped off, so that the apex of the protuberance is truncated in older ones, leaving a minute pore. At the outerside of the protuberance, that is the side away from the stem and therefore facing toward the scimitar like body, there is another smaller single cell. The latter, which Cramer has described as "briniformige Anlage," is mostly only one, but not seldom two are present, and in other times, entirely wanting. The nature of this cell, as Cramer has supposed, may be considered as a lateral rudimentary hair.

All the segments of the fertile leaves, i.e. the pedicelate portion, hairs etc. are at first in free communication with stem, but the pore is often closed by subsequent thickening. The fertile leaves and the stem are thickly calcified, while the sterile leaves and so called "ligular Haar" of the fertile one are not.

The fertile leaves when mature are transformed into sporangia, each of which contains 23-36 aplanospores. The spore is spherical, covered with two membranes; the outer thin and structureless; the inner thick and radially striated in optical section. Spores measure 140-207 μ in diam. and the inner membrane is 12-22 μ thick. On

application of iodine of potassium iodide, the outer membrane takes slightly purplish colour, while the inner blood-reddish colour with slightly purplish tinge.

The fertile and sterile leaves may be considered as homologous organs, especially so, as it is seen from the figure 2, where 3 consecutive nodes from the apex, more especially the second (Fig. 2, 2) and third nodes (Fig. 2, 3) carry the fertile leaves instead of the regular alternation. The case just spoken of, however, is not of usual occurrence.

Colour of frond is chalky white with light greenish shade.

Hab.: On the rocks and corals near high tide in calm places. Riukiu.

Remarks: The affinity of *Halicoryne* with *Acetabularia* is beyond any doubt, as it is shown by the possession of the sterile and fertile leaves. That the upper protuberance of the fertile leaves in *Halicoryne* recalls the corona superior of *Acetabularia* has already been stated above. It is interesting that *Acetabularia crenulata*, which normally produces several caps in succession above each other, has the closest affinity with *Halicoryne*. *Halicoryne*, on the other hand, shows an affinity with the members of *Dasycladaceae* by possession of both sorts of leaves, but being distinguished from the latter by the alternation of those organs and character of sporangia.

Plate XLIII.—Fig. 1: fronds of *Halicoryne Wrightii* Harv. growing on coral, in nat. state and size.—Fig. 2: longitudinal section of the terminal portion of the stem; 1,2,3,4,5, fertile leaves; well-formed sterile leaves at the fourth (between 3 and 4) and sixth nodes (between 4 and 5) from the apex, $\frac{52}{1}$.—Fig. 3: apical portion of frond of fig. 2 magd., showing fertile leaves at the second node, $\frac{220}{1}$.—Fig. 4: fully developed sterile leaf, $\frac{390}{1}$.—Fig. 5: naked portion of stem; a, scars for the fertile leaves; b, those for the sterile hairs; $\frac{22}{1}$.—Fig.

6: basal portion of stem, $\frac{5}{1}$.—Fig. **7**: whirl of fertile leaves in the upper portion of frond, viewed from the underside in cross-section of stem, $\frac{2}{1}$.—Fig. **8**: two fertile leaves seen from the inner surface, $\frac{9}{1}$.—Fig. **9**: surface-view of the constricted node of an older fertile leaf seen from the inner side, showing the thickening of wall in optical section; $\frac{390}{1}$.—Fig. **10**: younger fertile leaf seen from the side in optic section, $\frac{220}{1}$.—Fig. **11**: younger fertile leaf marked 3 in fig. 2; i. e. that which arises from the 3rd node from the apex of stem, $\frac{220}{1}$.—Fig. **12**: another younger fertile leaf arising at the 3rd node of a different frond having "Ligulare Haar," $\frac{9}{1}$.—Fig. **13**: scar of fertile leaf in denudated portion of stem, magd;—Fig. **14**: the same of the sterile leaf, magd.—Fig. **15**: cross-section of basal portion of a fertile leaf, $\frac{5}{1}$.—Fig. **16**: cross-section of the middle portion of a fertile leaf, $\frac{5}{1}$.—Fig. **17**: sporangium, $\frac{37}{1}$.—Fig. **18**: aplanospores, $\frac{5}{1}$.

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Halicoryne Harvey 1859.

いそすぎな属.

ACETABULARIEAE (DASYCLADACEAE).

かさのり亞科 (タヂクラジア科).

體ハ棍棒狀，單條ニシテ石灰質ヲ被ムリ，一條ノ細キ中空ナル軸ヲ有シ，軸ノ周圍ニ數層ノ小枝ヲ輪生ス；體ノ下部ハ此等小枝ノ早落スルガ爲ニ裸出シテ莖狀ヲナシ其痕跡ヲ印スルノミ。輪生スル小枝ハ二様ニシテ正シク交互シ，一ハ成實枝ニシテ一ハ中性枝ナリ；成實枝ハ荳蒴狀ヲナシ，屈曲シ，先端尖リ，各相互ニ離レテ癒着セズ，後胞子囊トナリ，内ニ多數ノ「アプラノ」胞子ヲ藏ス。中性枝ハ細クシテ複叉狀ニ分レ，成實枝ヨリハ小ニシテ細ク，頂端附近ニノミ殘存ス。「アプラノ」胞子ハ球狀ニシテ厚キ膜ヲ被ムル。

從來下ノ一種我琉球ニ知ラレタルノミナリ。—屬ノ名ハ als (海) ト coryne (棍棒) トヨリ成ル、即チ體ノ形ニ依レルナリ。

Halicoryne Wrightii Harv.

いそすぎな 岡村稱

第 XLIII 圖版

體ハ單條、棍棒狀ニシテ厚ク石灰質ヲ被ムリ、細キ圓柱狀ノ莖ヲ以テ叢生シ直立ス；莖ノ下端ヨリ根ヲ輪生シ、高サ 6-7 cm. ニ達ス。莖ハ裸出ス；即チ基部ヨリ 10-20 mm. ノ間ハ少シモ小枝ナク、上部ハ多數ノ成實枝ヲ輪生ス；成實枝ハ覆瓦様ニシテ密ニ重疊シ、輪層ノ數 30 乃至其以上アリ。莖ノ裸出セル部分ニハ數層ノ圓形痕アリテ其輪層ニ大小ノ二種アリ；大ナル圓痕ハ既ニ落タル成實枝ノ付着點ヲ印スルモノニシテ、小ナル方ハ中性枝即チ Cramer 氏ノ所謂“節間毛”ト稱スルモノ、付着點ヲ印ス。小痕ノ輪ハ其上ナル大痕ノ輪ニ接シテ存シ、大小痕ノ輪層正シク相交互ス。兩者ノ各輪ニ於ケル圓痕ノ數ハ莖ノ位置ト太サトニヨリ一定セザレドモ、一般ニ大ナル圓痕ノ方ハ小ナルモノ、方ヨリ常ニ少シク多數ニシテ、其數ハ約 12 乃至 15 或ハ其以上ニ達ス。體ノ成長點附近ニ於テハ、中性枝ハ第二圖ニ見ル如ク頂端ヨリ第四番(圖ニテハ 3 ト 4 トノ間)及第六番目(4 ト 5 トノ間)ノ節ヨリ出デ、其上部ノ三節ヨリ出ルモノハ總テ幼キ成實枝ナリ。第六節以下ニハ中性枝ハ通常退化シ、其大部分ハ萎朽スルコト J. Agardh 氏ノ Till Alg. Syst. ニ掲ゲタル第 4 圖 6 ニ見ル所ノ如シ。中性枝ハ、其完全セルモノニテハ、3-4 回複叉狀ニシテ各部 4-5 條ノ圓柱狀細胞ヨリ成ル；此等ノ細胞ハ漸次上方ニ行クニ從テ細クナルナリ。充分ニ成長シタル毛ハ其基部ニ短キ柄ヲ有シ、時トシテ

ハ此柄ニ一個ノ小ナル細胞付着スルコトアリ；此細胞ハ充分ニ發育スルコトヲ得ザル狀態ニアル毛トシテ考フルヲ得ベシ。

成實枝ハ互ニ癒着スルコトナクシテ相離レ，中性枝ヨリハ遙ニ大ニシテ且長ク，葉綠粒ヲ以テ充サル。成實枝ハ莖蒴狀若クハ刀形ヲナシ，基部ニ近ク輕ククビレ，短キ柄ノ如キ部分（Cramer 氏ノ“基部ノ膨レ”ト稱セルモノ）ト刀ノ如キ部分トニ分タル。刀ノ如キ部分ハ囊狀，圓柱狀ナラズシテ多少扁壓ス，殊ニ其中央部ニ於テ然リ，而シテ凹ミタル側面ヲ莖ノ方に向ケテ外方ニ屈曲シ，其先端ハ厚クナリテ短キ刺ヲナシ，刺ハ少シク外方ニ曲ル，即チ莖トハ反對ノ方ニ屈曲ス。幼キトキハ刀狀部ハ殆ド圓柱狀ニシテ上方ニ細クナリ，少シク屈曲ス。一輪層中ニアル成實枝ノ數ハ其位置ニ從テ 20 乃至其以上ニ達ス，而シテ初メハ莖ト通ズレドモ，後其廣キ通路ハ周圍ノ壁ノ漸ク増厚スルガ爲ニ狭クナリテ，僅ニ中心ニ狭キ孔ヲ殘ス；然レドモ，此孔モ亦往々後ニ至リテ閉塞ス。

成實枝ノ柄ハ其内側ニ於テ僅少ノ突起ヲ有ス；此突起ハ Acetabularia 屬ノ上花冠（corona superior）ニ相當ス。此突起ノ先端ニ二三回復叉狀ヲナセル毛アリ（Cramer 氏ノ“舌毛”ト云ヘルモノ是ナリ）；然レドモ此毛ハ往々單條ニシテ圓柱狀ノ細胞ノ先端細クナリタル如キ形ニテ残ルコトアリ；而シテ中性枝ヨリハ遙ニ短ク又遙ニ細クシテ早落ス；故ニ此突起ノ頂端ハ其老成セルモノニテハ截形ヲナシ，小サキ孔ヲ存スルニ至ル。此突起ノ外側即チ莖ヨリ遠キ方ノ側（即チ刀狀部ニ面シタルモノ）ニ又一ノ小サキ細胞アリ。此細胞ハ Cramer 氏ガ“梨狀付屬物”トシテ記載シタルモノニシテ多クハ只一個ナレドモ其二個ヲ存スルハ稀ナラズ，而シテ又全ク缺損スルモアリ。此細胞ノ性質ハ Cramer 氏ガ思惟シタル如ク，側面ニ生ジタル發育未發ノ毛トシテ考フルヲ得ベシ。

成實枝ノ各部即チ柄, 毛等ハ始メ莖ト通ズレドモ, 後往々周圍ノ壁ノ増厚スルガ爲ニ閉塞スルニ至ル。成實枝及莖ハ厚ク石灰質ヲ存スレドモ, 中性枝及成實枝ノ柄ノ突起上ニアル毛ハ之ヲ被ラズ。

成實枝ハ充分成熟スルトキハ子囊トナル。子囊ハ 23-36 個(或ハ多分尙多カラ)ノ「アプラノ」胞子ヲ藏ス。胞子ハ球狀ニシテ, 二層ノ膜ヲ以テ包マレ, 外膜ハ薄クシテ特別ノ構造ナク, 内膜ハ厚クシテ透視斷面ニテハ放射狀ニ線狀ヲ存ス。胞子ノ直徑ハ $140\text{-}207 \mu$ ニシテ内膜ノ厚サハ $12\text{-}22 \mu$ ナリ。沃度沃度加里液ヲ加フレバ外膜ハ少シク紫紅色ヲ取レドモ, 内膜ハ血紅色ニ稍紫紅色ヲ帶ビタル如キ色ヲ呈ス。

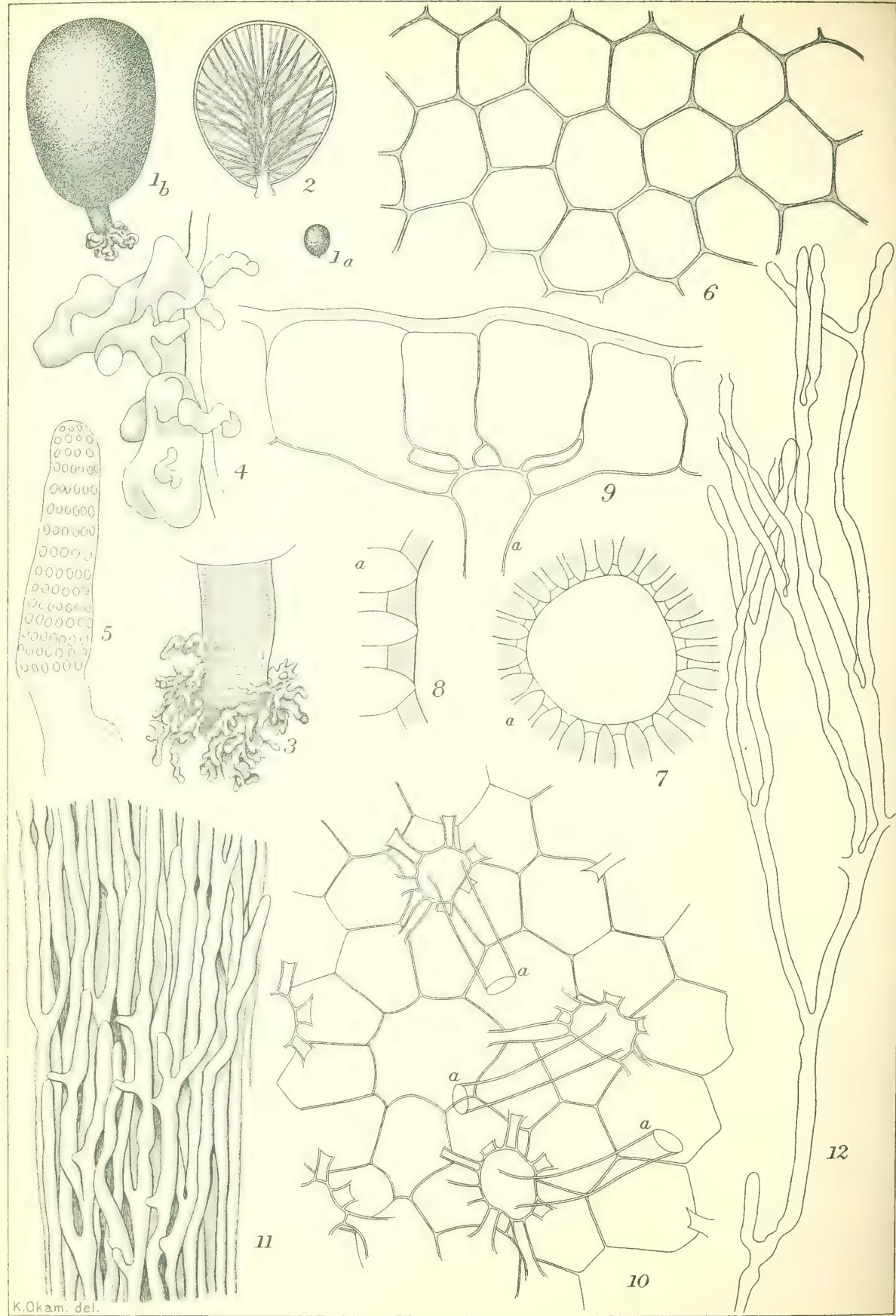
成實枝及ビ中性枝ハ共ニ同質ノモノト考フルヲ得ベシ; 殊ニ第二圖ニ示ス如ク, 第二ト第三節ト相續キテ成實枝ヲ出シ中性枝ト相交互スルコトナキヲ以テ見レバ其同性質ノモノタルコトハ之ヲ知ルニ難カラザルベシ。然レドモ第二圖ニ示ス如キ場合ハ常ニ必ズ然リトハ云フ能ハザルモノトス。

體ノ色ハ淡キ綠色ヲ帶ビタル白色ナリ。

產地: 高潮線ノ岩石, 潮溜リ等ニ產ス。琉球。

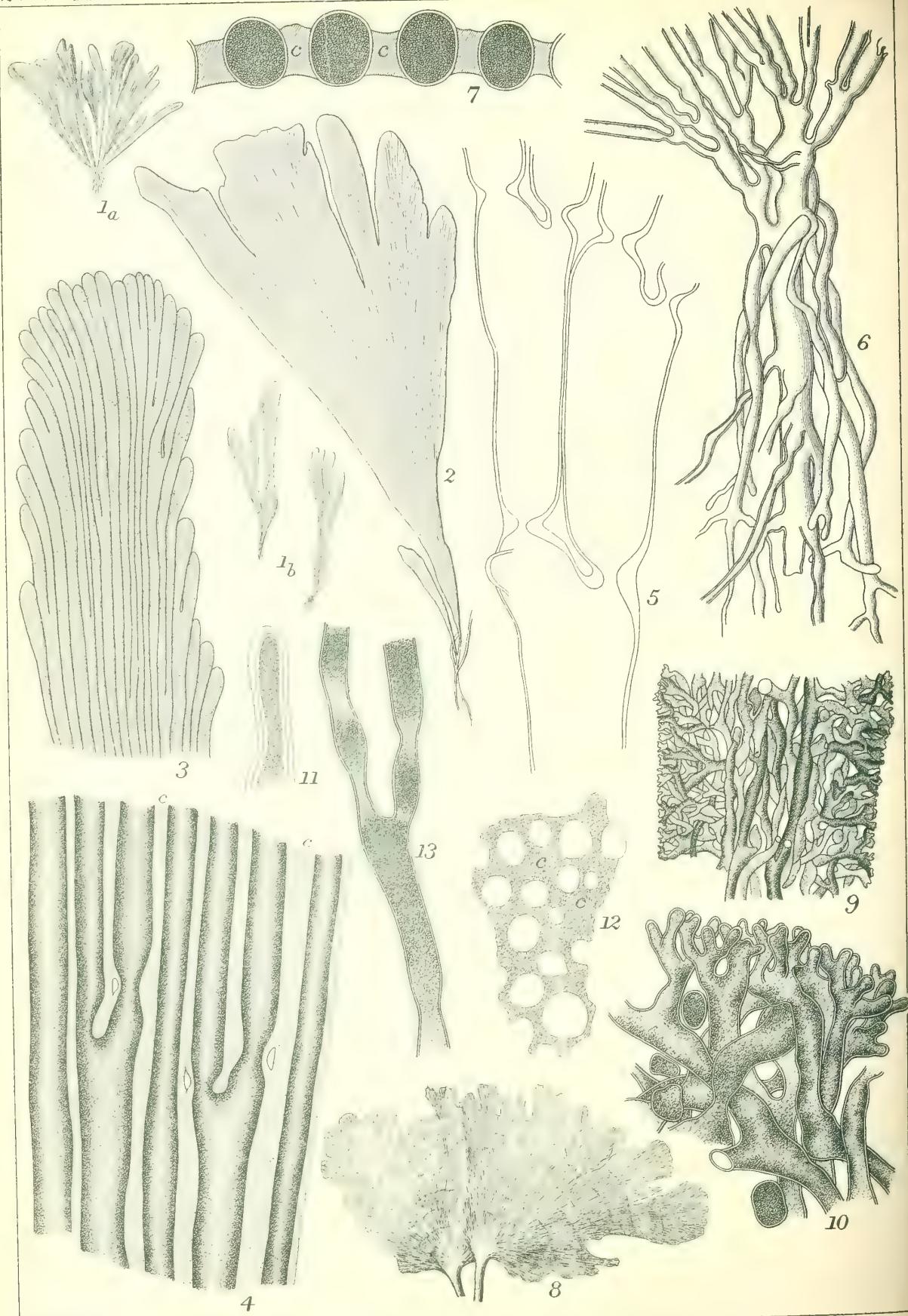
分布: ニウカレドニア。

備考: 成實枝ト中性枝トヲ有スルコトニ因リテ *Halicoryne* 屬ト *Acetabularia* 屬トノ近縁アルコト疑ヲ容レズ。 *Halicoryne* ニ於テ成實枝ノ小突起ガ *Acetabularia* ノ成實枝ノ上側ニアル上花冠ニ相當スルコトハ上ニ云ヘリ。 *Acetabularia crenulata* ハ常態ニ於テ數層ノ成實枝ヲ輪生シ層々相重疊スルモノアルコトハ *Halicoryne* ト最モ類縁ノ近キヲ示ス點ニ於テ趣味少ナカラズ。又一方ニ於テハ *Halicoryne* ハ二様ノ枝ヲ有スルコトニ依テ *Dasycladaceae* 亞科ノモノトモ類縁ノ存スルヲ示ス; 然レドモ其



K. Okam. del.

5 1b 4 11 3 2 1a 8 9 10 7 6 12
Bornetella capitata (Harv.) J.Ag. Fig. 1-10. みづたま.
Udotea conglutinata (Soland) Lamour. Fig. 11-12. はぶろも.



K.Okam. del.

Udotea javensis (Mont.) Gepp. Fig. 1-7. ひめいてう.
Udotea conglutinata (Soland) Lamour. Fig. 8-13. はぶろも。

之ト異ナル點ハ二様ノ枝ノ相交互スルト子囊ノ異ナルトニアリトス。

第XLIII圖版. 1: *Halicoryne Wrightii* Harv., いそすぎな, ノ珊瑚上ニ生ズル狀, 1—2: 茎ノ成長端ノ縦斷ニシテ, 1—5ハ成實枝; 頂端ヨリ第四節(3ト4トノ間)ト第六節(4ト5トノ間)トニ充分形成セラレタル中性枝アルヲ示ス, $\frac{52}{1}$.—3: 第2圖ノ頂端ヲ廓大シタルモノ; 第二ノ節(2)ニ成實枝アルヲ示ス, $\frac{220}{1}$.—4: 充分發育シタル中性枝, $\frac{390}{1}$.—5: 茎ノ裸出セル部分; a, 成實枝ノ痕; b, 中性枝ノ痕跡, $\frac{22}{1}$.—6: 茎ノ下部, $\frac{52}{1}$.—7: 體ノ上部ニ於ケル成實枝ノ輪環ヲ茎ヲ横斷シテ茎ノ下部ヨリ見タルモノ, $\frac{22}{1}$.—8: 二個ノ成實枝ヲ内面ヨリ見タルモノ, $\frac{91}{1}$.—9: 老成セル成實枝ノクビレタル節ヲ内面ヨリ見タルモノナリ, 而シテ壁ノ厚ミハ透視斷面ニテ示ス, $\frac{390}{1}$.—10: 幼キ成實枝ヲ側面ヨリ透視斷面ニテ見タルモノ, $\frac{220}{1}$.—11: 第2圖ノ3ナル幼キ成實枝ニシテ茎ノ頂端ヨリ第三節ニ出タルモノ, $\frac{220}{1}$.—12: 全上ノ位置ヨリ出タル他ノ植物ノ幼キ成實枝ニシテ毛ヲ有スルモノヲ示ス, $\frac{91}{1}$.—13: 茎部ニ於ケル成實枝ノ落チタル痕跡, 廓大.—14: 全上ノ中性ノモノ, 廓大.—15: 成實枝ノ基部ノ横斷面, $\frac{52}{1}$.—16: 成實枝ノ中央部ノ横斷面, $\frac{52}{1}$.—17: 子囊, $\frac{37}{1}$.—18: アブラノ胞子, $\frac{52}{1}$.

Bornetella capitata (Harv.) J. Ag.

Nom. Jap.: *Midzutama*.

PL. XLIV, Fig. 1-10.

Bornetella capitata (Harv.) J. Ag. Till Alg. Syst. VIII, p. 156;
De Toni Syll. Alg. I, p. 415; Cramer Siphoneen p. 18, fig. 249, e;

Cramer Ueber die verticillirten Siphoneen, besonders Neomeris und Bornetella (1890) p. 30, Taf. IV, fig. 6-14.—*Neomeris capitata* Harv. *List of Friendly Islands Algae sub. no. 85.*—*Neomeris* sp. 岡村, 日本藻類名彙 p. 195. .

Hab.: On the foot of *Acetabularia mediterranea* Lmx. in Riukiu. Ogasawara-isl., Riukiu (Col. Inui).

Pl. XLIV, Fig. 1-10. Fig. 1: *a*, frond of *Bornetella capitata* (4×4 mm. in size) in nat. state and size; *b*, same magd., $\frac{5}{1}$.—Fig. 2: longitudinal section of frond, $\frac{5}{1}$.—Fig. 3: stem (wrinkled on the surface) 506μ thick, and roots, $\frac{22}{1}$.—Fig. 4: sac-like roots bulging out from the side of stem, $\frac{91}{1}$.—Fig. 5: central axis deprived of verticillate leaves, $\frac{22}{1}$.—Fig. 6: surface-view of frond, $\frac{91}{1}$.—Fig. 7: cross-section of the axis (356μ in diam.); *a*, leaves; $\frac{91}{1}$.—Fig. 8: portion of the same; *a* leaves; $\frac{220}{1}$.—Fig. 9: cross-section of the facets of frond; *a*, one of leaves verticillately arranged around the axis, $\frac{140}{1}$.—Fig. 10: surface-view of the facets of frond viewed from the inner side; *a*, *a*, verticillate leaves giving rise to 6-8 facets upward; $\frac{91}{1}$.

Bornetella Mun. Chalm. 1877.

みづたま屬.

DASYCLADEAE (DASYCLADACEAE).

ダジクラヂア亞科 (ダヂクラヂア科).

體ハ棍棒狀又ハ俵狀ニシテ短莖ヲ有シ, 石灰質ヲ被ムル. 莖ハ分岐スルコトナク圓柱狀ニシテ厚膜ヲ有シ, 基部ニ於テ不規則ニ分岐セル囊狀ノ付着器ヲ形成ス, 而シテ周圍ヨリ密ニ相接近シテ重疊セル輪生ノ枝(之ハ莖ト同性質ノモノナリ)ヲ生ズ. 枝ハ一輪層ヨリ 12-48 條ヲ生ジ其先端二回(又ハ三回)放射狀ニ分岐ス. 此放射狀ニ分岐シタル枝ハ囊狀ニ膨大

シ互ニ密ニ接觸スルヲ以テ、之ヲ表面ヨリ見レバ概モ五六角形ノ細胞ノ如ク見ユ；此細胞相接着シテ一層ヲナシ以テ棍棒狀又ハ球狀ノ體ヲナス；而シテ莖ハ此棍棒狀部ノ内ニテ中軸ノ如クナルナリ。（此多角形ノ細胞ノ如ク見ユル部分ハ其幼キ時ニ當リテハ單條又ハ通常叉狀ニ分岐セル毛ヲ戴クカ否カ詳ナラズ；毛ハ若之ヲ存スレバ早落性ニシテ僅少ノ細胞ヨリ成ル）。子囊ハ中軸ヨリ輪生セル枝ノ側部ニ棍棒狀又ハ球狀ニ膨大シテ生ジ、多數ノ球狀ナル胞子ヲ藏ス；其内容ハ後球狀ナル被膜ヲ有スル胞子ニ變ズ。

此屬ハ *Neomeris* 屬ト最モ近ク類似スレドモ *Neomeris* 屬ハ中軸ヨリ出ル枝ノ上端二個ニ分岐シ、且ツ此枝ノ頂端ニ子囊ヲ生ズルヲ以テ異ナリトス。從來知ラレタルモノハ僅ニ二種ニシテ「フレンドリー」諸島「オーストラリア」等ニ產ス。屬ノ名ハ佛國ノ海藻學者 E. Bornet 氏ノ名譽ノ爲ニ設ケタルナリ。

Bornetella capitata (Harv.) J. Ag.

みづたま　岡村 稱。

第 XLIV 圖版, 1-10 圖。

短キ圓柱狀ノ莖ヲ有シ、體ハ倒卵形一球狀、俵狀等ヲナス色淡綠色ナリ。體ノ表面ヨリ生ズル毛ハ其存否詳ナラズ。構造ハ屬ノ所ニ記シタルモノニ同ジ。

產地： かさのりノ基部ニ付着セリ(琉球)、多分ハ淺キ所又ハ潮溜リ等ニ生ズルナルベシ。小笠原島、琉球(乾氏)。

分布： フレンドリー諸島。

第 XLIV 圖版, 1-10 圖。1: a, *Bornetella capitata* の體、(大サ 4×4 mm. ナリ), $\frac{1}{4}$; b, 全上ヲ廓大シタルモノ, $\frac{5}{1}$ —2: 體ノ縦斷面, $\frac{5}{1}$ —

3: 莖(表面ニ皺アリ, 506 μ 太シ) 及ビ根, $\frac{22}{1}$.—4: 莖ノ側面ヨリ出タル囊狀ノ根, $\frac{91}{1}$.—5: 輪生セル枝ヲ除キテ中軸ノ表面ヲ示ス, $\frac{22}{1}$.—6: 體ノ表面, $\frac{91}{1}$.—7: 中軸ノ横斷面, (徑 56 μ); a, 葉即チ輪生セル枝, $\frac{91}{1}$.—8: 全上ノ一部; a; 全上, $\frac{220}{1}$.—9: 體ノ表面ナル皮部ノ横斷面; a, 全上, $\frac{140}{1}$.—10: 體ノ表面ナル皮部ヲ内面ヨリ見タルモノ; a, a, 全上ノ枝ニシテ其上部 6-8 個ノ表面細胞ニ膨大スルモノ, $\frac{91}{1}$.

Udotea javensis (Mont.) Gepp.

Nom. Jap.: *Himé-Icho*.

PL. XLV, Fig. 1-7.

Udotea javensis (Mont.) Gepp Rhipidosiphon and Callipsyagma (Journ. of Bot. vol. XLII, 1904, No. 504) p. 364, Pl. 467, f. 1-4; Id. Rhipidosiphon (Journ. of Bot. XLIII, 1905, p. 129).—*Rhipidosiphon javensis* Mont. Prodr. Phycolog. Antarct. 1842, p. 14, in D'Urv. Voy. Pol. Sud, 1845, p. 23, pl. 7, f. 3; Kuetz. Sp. Alg. p. 493; De Toni Syll. Alg. I, p. 518; Wille in Engler u. Prantl natürl. Pflanzenf. I Th. 2, p. 144; 岡村, 日本藻類名彙 p. 186.

Hab.: On rocks between tide-marks. Hiuga (Col. Yendo).

Pl. XLV. Fig. 1-7. Fig. 1: a-b, frond of *Udotea javensis* (Mont.) Gepp, in nat. size.—Fig. 2: one of fronds magd., $\frac{5}{1}$.—Fig. 3: surface view of the apical portion of frond, $\frac{54}{1}$.—Fig. 4: surface-view of the median portion of frond; c, c, lines of calcification, $\frac{220}{1}$.—Fig. 5: filaments decalcified to show the dichotomy, $\frac{220}{1}$.—Fig. 6: lower portion of frond showing the stem and root-fibres, $\frac{54}{1}$.—Fig. 7: cross-section of frond; c, c, lines of calcification; cells measuring 35 μ in thickness; $\frac{340}{1}$.

Udotea Lamouroux 1816.

はごろも属.

CODIACEAE みる科.

體ハ輕ク石灰質ヲ以テ蔽ハレ、罕ニ甚ダシク之ヲ存スルコトアリ；莖ヲ存ス；莖ハ往々匍匐シ又分岐シ、其上部ニ扇狀ノ體ヲ戴ク。扇狀ノ部ハ單一ニシテ扁平、往々楔形ヲナシ、上部ハ分裂シ又ハ不規則ニ分レ、時トシテハ其縁邊ヨリ副枝ヲ生ズ。莖及其ヨリ分レタル小莖ハ圓柱狀又ハ稍扁圓ニシテ、一條ノ細胞ヨリ成ルモノアレドモ、概子明ニ區別セラルベキ髓部ト皮層トニ分レ、其下部ハ無數ノ毛狀根ヲナス。扇狀部ハ重圈狀線ヲ呈シ、時ニハ全ク皮層ヲ被ラザルモノアレドモ、又一層ノ皮層ヲ存スルモノアリ。細胞ニハ何レノ處ニモ横隔膜ヲ生ズルコトナシト雖モ、其處此處ニクビレヲ存ス、クビレハ殊ニ絲狀細胞ノ分岐點ニ於テ之ヲ存ス。游走子囊(?)ハ圓形ニシテ扇狀部ノ絲狀細胞ノ側部ニ短キ枝ヲナス；此他ニ生殖細胞ラシキモノアルヲ知ラズ。

熱帶及溫帶ノ海ニアリテ約10種アリ；四族ニ分タル。—屬ノ名ハ Ydor (水) ヨリ成ル。

Udotea javensis (Mont.) Gepp.

ひめいてう 岡村稱.

第XLV圖版，1-7圖。

體ハ小ニシテ頗ルいてうノ葉ニ類シ、今予ノ許ニアルモノニテハ皆分裂スト雖モ、書ニ依ルニ稍全キモアリ、高サ 25-30 mm. = シテ灰白綠色ヲナス。體ノ下部ハ一條ノ單管ナル莖ヨリ成リ、莖ノ各方面ヨリ毛狀根ヲ叢出シ、莖ハ上方ニ數回又

狀ニ分岐シテ放射狀ニ列シ，枝皆其兩側ニ於テ密ニ相接シ一層ノ面ニ並列シテ薄キ葉片ヲナシ石灰質ヲ以テ固着ス；而シテ體ノ下部ハ楔形ニシテ上部ハ圓形ヲナシ往々數個ノ裂片ヲナス，其各裂片皆圓頭ニ終ル。

產地：潮線間ノ岩石ニ生ズ。日向有明灣内一里崎（遠藤氏）。

分布：「バタビア」ライデン島；セーラン；マレー半島。

本種ハ元ジャバ附近ニテ Hombron 氏ノ採集シタルモノニ依リ Montagne 氏ガ 1842 年 *Rhipidosiphon javensis* トシテ記載シタルヲ初メトシ，其後嘗テ發見セラレタルコトナカリシヲ以テ其マニ存シタリシガ，近頃 Gepp 女史ハ新ニ此ガ研究材料ヲ得テ攻査シタル結果，之ヲ *Udotea* 屬ニ合スノ至當ナルヲ發見セリ。而シテ體ノ扇狀部ノ構造 *Udotea glaucescens* ニ酷似スト雖モ，該種ハ莖ノ構造數條ノ並行セル纖維ヨリ成リ多數ノ側枝ヲ有シテ石灰質ノ皮層ヲ被ムルコト全ク本種ノ單管ナル莖ト同ジカラザルヲ以テ異ナリトス；然レドモ其甚シク近縁ノモノナルコトハ Ferguson 氏ノ Ceylon Algae No. 439 = *Udotea glaucescens* var. *tenuis* (又ハ *tenuior*) Grun. トシタルモノハ實ニ本種ニ外ナラザルヲ以テモ知ルニ難カラズトス。

第 XLV 圖版，1-7 圖。1: *a-b*, *Udotea javensis* (Mont.) Gepp, ひめいてう，ノ體， $\frac{1}{1}$ -2: 體ノ一ヲ廓大シタルモノ， $\frac{5}{1}$ -3: 體ノ頂部ヲ表面ヨリ見タルモノ， $\frac{58}{1}$ -4: 體ノ中央部ノ表面；*c, c*, 石灰質 $\frac{220}{1}$ -5: 石灰質ヲ除キタル絲狀細胞ニシテ其分岐ヲ示スモノ， $\frac{220}{1}$ -6: 體ノ下部ニシテ莖ト根トヲ示ス， $\frac{54}{1}$ -7: 體ノ橫斷面；*c, c*, 石灰質；細胞ノ徑ハ 35μ アリ， $\frac{340}{1}$ 。

Udotea conglutinata (Soland.) Lamour.

Nom. Jap.: *Hagoromo*.

PL. XLIV, Fig. 11-12; PL. XLV, Fig. 8-13.

Udotea conglutinata (Soland.) Lamour. *Polyp. fiéx.* p. 312; *Id. Expos. Meth.* p. 28, t. 25, f. 7; *Kuetz. Sp. Alg.* p. 502; *J. Ag. Till Alg. Syst.* VIII, p. 72; *Harv. Ner. Bor. Amer.* III, p. 27, t. 40, C; *De Toni Syll. Alg.* I, p. 507; *Udotea* sp. 岡村, 日本藻類名鑑 p. 186; *Corallina conglutinata* Soland in *Ellis Zooph.* p. 125, t. 27, f. 7.

Hab.: Riukiu (col. Kuroiwa, Ando and Kanagusuku).

Pl. XLV, Fig. 8-13. Fig. 8: two fronds of *Udotea conglutinata* (Soland.) Lamour. fused together, in nat. size.—Fig. 9: longitudinal section of stem decalcified, slightly magd.—Fig. 10: portion of the cross-section of stem, decalcified, $\frac{220}{1}$.—Fig. 11: terminal branchlets of cortical filament of stem, showing thickness of stratified cell-wall, $\frac{860}{1}$.—Fig. 12: portion of cross-section of stem; c, c, calcareous deposit, $\frac{220}{1}$.—Fig. 13: filament of upper portion of frond showing constrictions, decalcified, $\frac{220}{1}$.

Pl. XLIV, Fig. 11-12. Fig. 11: surface view of calcified frond, $\frac{54}{1}$.—Fig. 12: filament of upper portion of frond decalcified, showing its ramification, $\frac{390}{1}$.

Udotea conglutinata (Soland.) Lamour.

はごろも 岡村 稱.

第 XLIV 圖版, 11-12 圖; 第 XLV 圖版, 8-13 圖.

體ハ扇狀ニシテ下部腎臟形ヲナシ, 圓柱狀一扁圓ノ莖ヲ有シ, 全部石灰質ヲ被ムリテ淡綠色ナリ. 扇狀部ハ屢々叉狀

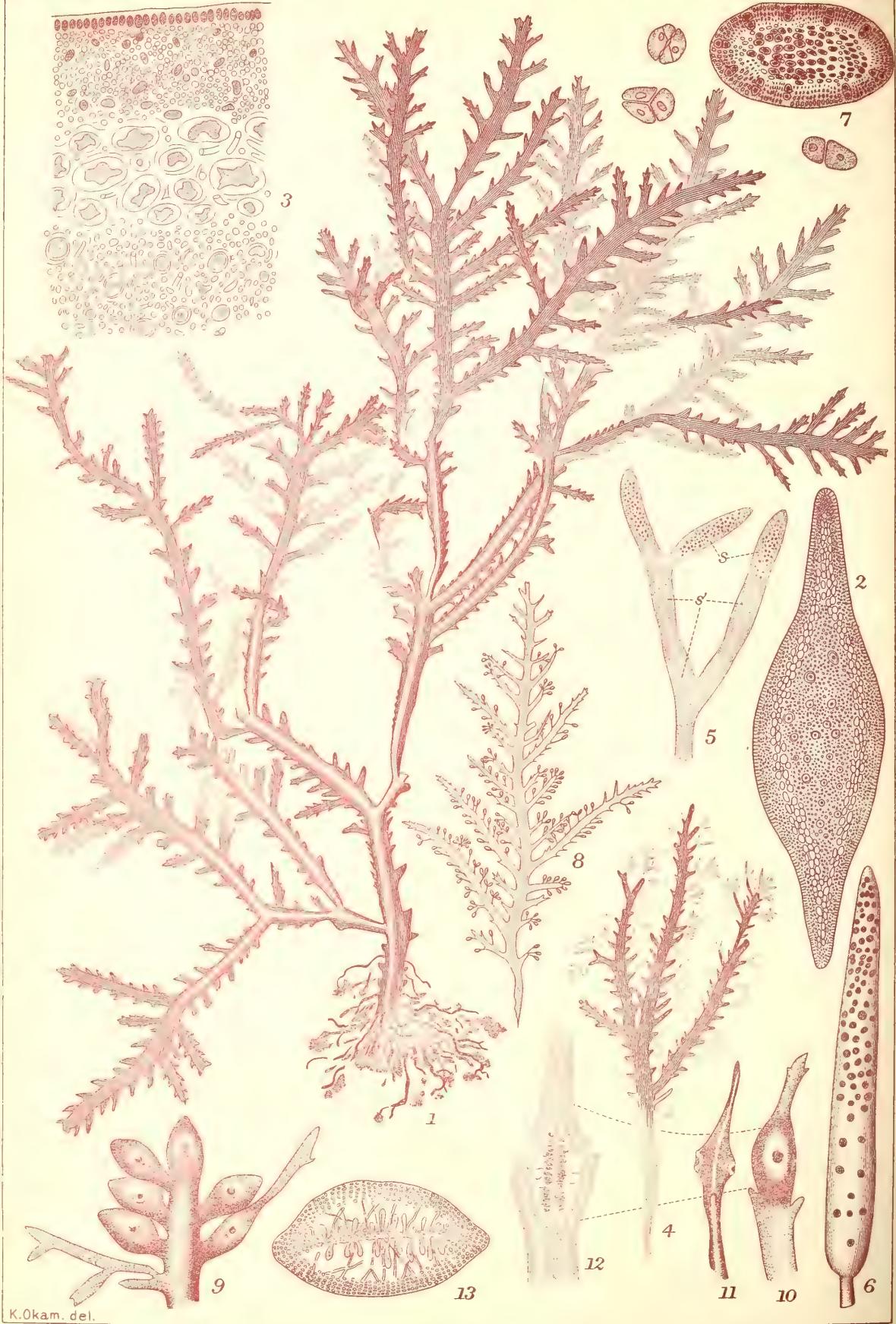
ニ分岐セル絲狀細胞ノ放射狀ニ列セルモノヨリ成リ, 少互ニ並行シテ走リ, 數層ヲナシテ相密着シ, 少屈曲シ, 石灰質ヲ以テ蔽ハル; 皮層ハ之ヲ存スルコトナシ. 體ノ大サハ 2-6 cm ニシテ莖ハ 1-1.5 cm. 長ク, 1.5-2 mm. 太シ.

產地: 琉球(黒岩氏, 安藤氏, 金城氏).

分布: 印度洋.

第 XLV 圖版, 8-13 圖. 8: *Udotea conglutinata* (Soland.) Lamour. ノ二個體ノ癒合シタルモノ, 9: 莖ノ縦斷面, 石灰質ヲ除キタルモノ, 廓大.—10: 莖ノ横断面ノ一部, 石灰質ヲ除キタルモノ, $\frac{220}{1}$.—11: 莖ノ皮部ノ小枝ノ頂部ニシテ層成セル細胞膜ノ厚ミヲ示ス, $\frac{860}{1}$.—12: 莖ノ横断面ノ一部, 石灰質ヲ存スルマヽ; c, c, 石灰質, $\frac{220}{1}$.—13: 體ノ上部ノ絲ノクビレヲ示ス, 石灰質ヲ除キタルモノ, $\frac{220}{1}$.

第 XLIV 圖版, 11-12 圖: 11: 石灰質ヲ存スル體ノ表面, $\frac{54}{1}$.—12: 體ノ上部ノ絲ヲ石灰質ヲ除キテ其分岐ヲ示ス, $\frac{390}{1}$.



Gelidium subcostatum Okam. ひらくさ.

Gelidium subcostatum Okam.

Nom. Jap.: *Hira-kusa*.

PL. XLVI.

Gelidium subcostatum Okam. in Schmitz's Neue japanische Florideen von K. Okamura (Hedwigia Bd. XXXIII, 1894) p. 1, Taf. X); 岡村, 日本藻類名集 p. 21.

Diagn. "Frond compressed two-edged, distichously pinnate; main branches distinctly midribbed with acute axils. Tetraspores cruciate in ciliform simple or branched pinnae. Cystocarps oval, immersed below the apex of pinnae, bilocular."—*Okam. l.c.*

Plant of the present species often attains 1 metre or more in height.

Hab. On rocks, stones etc. in deep waters; Provs. Hiuga, Shima, Idzu, Awa and Sagami. Fruits:—late spring to summer.

PL. XLVI. Fig. 1: sterile frond of *Gelidium subcostatum* Okam., $\frac{1}{4}$.—Fig. 2: cross-section of frond, magd.—Fig. 3: portion of the cross-section of frond, magd.—Fig. 4: portion of frond with etras poriferous ramuli, nat. size.—Fig. 5: tetrasporiferous ramulus; s , sorus; s' , the same emptied, $\frac{5}{4}$.—Fig. 6: tetrasporiferous ramulus, magd.—Fig. 7: cross-section of a tetrasporiferous ramulus; 3 spores detached, magd.—Fig. 8: portion of branch bearing cystocarps, nat. size.—Fig. 9: cystocarps, $\frac{5}{4}$.—Fig. 10: cystocarp viewed from surface, $\frac{5}{4}$.—Fig. 11: the same as fig. 10 viewed laterally, $\frac{5}{4}$.—Fig. 12: longitudinal section of the same cut through carpostomes, magd.—Fig. 13: cross-section of a cystocarp magd.

Gelidium subcostatum Okam.

ひらくさ。

第 XLVI 圖版。

Gelidium (てんぐさ属) の性質ハ日本海藻圖說第一卷第一冊五頁ニアリ。

性質：體ハ扁壓，兩緣ニ薄ク，兩緣ヨリ羽狀ニ分岐シ，廣開ス；主枝ハ明ニ中肋ヲ存シ，腋銳角ナリ。四分胞子囊ハ單條又ハ分岐セル纖細ナル小羽枝ニ生ジ，十字様ニ分裂ス。囊果ハ卵形ニシテ小枝又ハ小羽枝ノ頂端下ニ膨大シ，二室ヨリ成ル。

記載：根ハ纖維狀ニシテ多ク枝ヲ分ツ。體ハ扁壓ニシテ，3-4回兩緣ヨリ羽狀ニ分レ，15-35 cm. 高ク，罕ニ1 m. ニ及ブモノアリ，幅2-5 mm. ニシテ，明ニ中肋ヲ存ス，而シテ體ノ下部ハ齡ト共ニ甚シク太シ。枝ハ廣開シ，伸長シ，2-3回羽狀ヲナス。枝ノ稍大ナルモノハ凡テ中肋ヲ存ス；中肋ハ漸次上方ニ消滅スルヲ以テ枝ノ上部及上部ノ枝ハ殆ド扁平トナル。腋ハ皆銳角ナリ。最末ノ小枝ハ尖銳ニシテ略ボ三角形ヲナス。

體ハ四層ヨリ成ル；髓層ハ長キ透明ナル絲狀細胞ヨリ成リ，之ニ次グニ圓形一多角形ノ細胞ヨリ成レルニ三ノ層ヲ以テス，而シテ皮下層ハ又長キ絲狀細胞ヨリ成リテ小サキ有色ノ細胞ト混在ス；皮層ハ一層ノ有色細胞ヨリ成ル。

四分胞子囊ハ單條又ハ分岐セル纖細ナル小羽枝ニ密集シ，皮層細胞中ニ埋在シテ十字様ニ分裂ス。囊果ハ卵形ニシテ小枝ノ頂端下ニ膨大シテ生ジ，枝ノ兩面ニ隆起シ，二室ヨリ成ル；隔壁ハ縱ニシテ細キ絲狀細胞ヲ以テ之ト果皮トヲ結合ス。果胞子ハ中央ナル隔壁ノ兩面ニ生ジ，細キ珠柄ヲ有シ，棍棒狀ナリ。色ハ紫紅色ニシテ綠色又ハ黃色トナル。質軟



Ptilota pectinata (Gunn) Kjellm. くしべなひば Fig. 1-15.

Ptilota pectinata (Gunn) Kjellm. f. litoralis Kjellm. Fig. 16-17.



Ptilota Asplenoides (Turn) Ag. かたわべよひば.

K. Okam. del.

骨様ニシテ、乾燥スル時ハ紙ニ付着セズ。

產地：概子深處ニアリ。日向、志摩、伊豆、相模、安房。

果實：暖春ヨリ初夏。

備考：本種ハてんぐさ屬 (*Gelidium*) 中中肋ヲ有スルヲ以テ他ト著シク區別スルニ足ル；尤モおにくさ (*Gelidium japonicum* (Harv.) Okam.) ニモ中肋アレドモ、體ノ形狀並ニ中肋ヨリ小枝ヲ副出スル性質アルニ依テ本種ト全ク同ジカラズ。本種ハ凍瓊脂製造原料トシテ用キザルニハアラザレドモ品質佳良ナラズ。

第XLVI圖版。1: ひらくさ, *Gelidium subcostatum* Okam., ノ實ナキモノ、自然大。—2: 體ノ稍下部ノ横斷面、廓大。—3: 體ノ横斷面ノ一部、廓大。—4: 四分胞子ヲ有スル小枝ヲ着ケタル枝ノ一部、自然大。—5: 四分胞子群ヲ有スル小枝; s, 子囊群; s', 胞子ノ脱出シタル部分, $\frac{5}{1}$ 。—6: 四分胞子群ヲ有スル小枝、廓大。—7: 四分胞子群ヲ有スル小枝ノ横斷面; 側ニ三個ノ四分胞子ヲ示ス; 廓大。—8: 囊果ヲ有スル體ノ一部、自然大。—9: 囊果, $\frac{5}{1}$ 。—10: 囊果ヲ有スル小枝ヲ表面ヨリ見タルモノ, $\frac{5}{1}$ 。—11: 同上ノモノヲ側面ヨリ見タルモノ, $\frac{5}{1}$ 。—12: 果孔ヲ通シテ囊果ヲ縦断シタルモノ、廓大。—13: 囊果ノ横断面、廓大。

Ptilota pectinata (Gunn.) Kjellm.

Nom. Jap.: *Kushi-benihiba*.

PL. XLVII.

Ptilota pectinata (Gunn.) Kjellm. Alg. of Arct. Sea p. 174; de Toni Syll. Alg. IV, p. 1377.—*Ptilota serrata* Kuetz.; J. Ag. Sp. Alg.

II, p. 96; Id. Epier. p. 76; Harv. Ner. bor. Amer. II, p. 222.—*Ptilota plumosa* & *serrata* Kuetz. Sp. Alg. p. 670; Id. Tab. Phyc. XII, t. 55. f. e-f.—*Ptilota plumosa* var. *asplenoides* Ag., Lyngb. Hydrophyt. Dan. p. 38, t. 9, f. A.—*Fucus pectinatus* Gunn. Fl. Nov. II, p. 122.—*Ptilota plumosa* β *Pt. formosa* Kuetz. Sp. Alg. p. 669.—*Plumaria pectinata* var. *integrrima* Rupr. Alg. Ochot. p. 334.

Hab.: On rocks between tide-marks. Isl. Urupp; Urakawa and Otaru (Hokkaido); Prov. Rikuchu.—Antheridia April (Urakawa); tetraspores and cystocarps: summer.

Remarks. Antheridia are mostly produced from the pinnulae arising from the inner side of compound pinnae; sometimes they are formed from those of the outer, but this is rarer in case and few in number. Again they are transformed from marginal teeth of simple pinnae; in this case, the maginal teeth develope into pinnated ramuli (fig. 10). The development of antheridial pinnulae is exactly same as that of tetrasporic pinnae, as it is easily seen by comparing fig. 7 and 12.

f. litoralis Kjellm. the Algae of the Arctic Sea p. 174, Tab. 15, fig. 2-5.

Hab.: Otaru and Mashiké (Hokkaido); Kesenuma (Prov. Rikuzen).

PL. XLVII. Fig. 1: frond of *Ptilota pectinata* (Gunn.) Kjellm. in nat. size.—Fig. 2: cross-section of the thicker portion of a branch, ca. $\frac{50}{1}$.—Fig. 3: portion of a sterile branch, $\frac{50}{1}$.—Fig. 4: deeply serrated pinna (from Isl. Urupp.), $\frac{22}{1}$.—Fig. 5: branch with tetrasporic pinnae, $\frac{50}{1}$.—Fig. 6: upper pinna of tetrasporic frond, $\frac{22}{1}$.—Fig. 7: beginning of a tetrasporic pinna, $\frac{240}{1}$.—Fig. 8: tetrasporic pinna, $\frac{50}{1}$.—Fig. 9: pinnulae and pinnellae ripening tetraspores, $\frac{220}{1}$.—Fig.

10: simple pinna bearing antheridia transformed from marginal teeth,
 $\frac{33}{1}$.—Fig. 11: compound pinna bearing antheridia, $\frac{54}{1}$.—Fig. 12:
beginning of antheridial pinnellae transformed from a pinnula of a
compound pinna, $\frac{220}{1}$.—Fig. 13-14: upper and lower portion of one
and the same branch bearing cystocarps, $\frac{12}{1}$.—Fig. 15: cystocarp,
 $\frac{33}{1}$.

Fig. 16. portion of the frond of *Pt. pectinata f. litoralis*
Kjellm. in nat. size.—Fig. 17. portion of the branch, $\frac{12}{1}$.

Ptilota pectinata (Gunn.) Kjellm.

くしへにひば 岡村稱.

第 XLVII 圖版.

Ptilota C. Ag. (べにひば屬) の性質ハ日本海藻圖說第一卷第四冊六十七頁ニアリ.

體ハ複羽狀ニシテ多少明ナル一條ノ幹ヲ有スルカ又ハ幹ハ下部僅ニ殘存シテ其上部ヨリ多數ノ主枝ニ分レ, 主枝各幹ノ如キ狀ヲ呈ス; 主枝ハ始メ扁平ニシテ兩緣ニ薄ク, 中肋ヲ存スレドモ中肋ハ後其部ノ老成スル時ハ太クナリテ不明トナル, 而シテ漸次枝ヲ分チ, 枝ハ皆對生ス. 羽枝(即チ各枝ノ兩緣ヨリ美シク羽狀ニ出ル枝)ニ二様アリテ對生シ, 一ハ單條ニシテ其成長ニ限リアリ, 一ハ複性ニシテ成長ニ限ナク其上部ヨリ更ニ枝ヲ分ツ. 單性ノ羽枝即有限枝ハ其緣邊鋸齒若クハ櫛齒狀缺刻ヲ有シ, 複性ノ羽枝即無限枝ハ下部羽狀ヲナサレドモ上部ハ羽狀ニ分枝シ, 小羽枝ハ廣キ基部ヲ以テ披針狀ヲナス, 其形單性ノ羽枝ト同ジクシテ小サク, 全部皮層細胞ヲ以テ蔽ハル, 而シテ複性ノ羽枝ハ互生ス. 單性ノ羽枝ノ缺刻ハ其幼者ニアリテハ外側ノ方概子深ケレドモ, 後内外トモ同様トナル. 體ノ高サム 10-20 cm. = 達シ, 幅 15 mm. = 達ス.—四分胞子群

ハ概子無限枝即複性ノ羽枝ヨリ變生スレドモ、時ニハ單性羽枝ノ鋸齒ヨリ變成スルコトアリ；群ハ胞子托狀ニシテ團塊又ハ圓錐狀ヲナシ恰モ海綿質ノ如キ觀ヲ呈シ、中性ナル絲狀ノ枝ト混在シ、有柄ノ胞子ヲ着ク。胞子托ノ發生ハ第7圖ニ示ス如ク始メハ正シク羽狀ヲナセル細胞列ヨリ成リ、後漸次伸長スルニ隨テ枝ヲ増シ以テ團塊ヲナスナリ；其中胞子ヲ熟スルモノト熟セザルモノトノ別ヲ生ジ、以テ中性タルベキ絲狀ノ枝ヲナスナリ。精子器モ胞子托ト同様ノ場所ニ生ズルコト第10-11圖ヲ見テ知ルベク、其發生モ亦之ト同ジキコト第12圖ヲ以テ知ルベシ。囊果ハ複性枝ニ生ジ單柄ヲ有シ、稍扁平ナル苞枝ヲ存シ、苞枝ハ5-7條ニシテ緣邊全緣又ハ鋸齒ヲ存ス。色鮮紅色、質軟キ軟骨質ナリ。

產地：潮線間ノ岩石ニ生ズ。得撫島、沙那、浦河、小樽、陸中。

精子器：一四月（浦河）；四分胞子及囊果：一夏季。

分布：北冰洋（ノルウエー、ホワキトシー）；オホーツク海；大西洋（グリーンランド、フェーレース島、ハリファクス、ヘルゴーランド等）。

f. litoralis Kjellm. 第XLVII圖版，16-17圖。

原種ヨリハ遙ニ細クシテ小サク單性羽枝ノ鋸齒及ビ複性羽枝ノ小羽枝ハ往々不完全ナリ。高サ6-10 cm.ニ達ス。

此形狀ノモノハ原種ト同一所ニ產シテ稍高潮線付近ニアリ。

產地：小樽及增毛；氣仙沼（陸前）。

第XLVII圖版。1：くしへにひば、*Ptilota pectinata* (Gunn.) Kjellm.ノ體、自然大。—2：太キ枝ノ橫斷面、約 $\frac{50}{1}$ 。—3：中性枝ノ一部、 $\frac{50}{1}$ 。—4：鋸齒ノ深キ單性ノ羽枝（得撫島產）、 $\frac{22}{1}$ 。—5：四分胞子群ヲ有スル枝、 $\frac{50}{1}$ 。—6：四分胞子群ヲ有スル體ノ上部ノ羽枝、 $\frac{22}{1}$ 。—7：

四分胞子群トナルベキ羽枝ノ初步ノ状態, $\frac{240}{1}$.—8: 四分胞子群ヲ有スル羽枝, $\frac{50}{1}$.—9: 四分胞子囊ヲ熟シタル小羽枝及ビ最小羽枝, $\frac{240}{1}$.—10: 緑邊ノ歯ヨリ變形シタル精子器ヲ有スル單性羽枝, $\frac{33}{1}$.—11: 精子器ヲ有スル複性ノ羽枝, $\frac{51}{1}$.—12: 複性羽枝ノ小羽枝ノ更ニ分岐シタル最小羽枝變ジテ精子器トナレルモノ、初步, $\frac{220}{1}$.—13-14: 囊果ヲ有スル同一ノ枝ノ上部ト下部, $\frac{12}{1}$.—15: 囊果, $\frac{33}{1}$.

16: f. litoralis Kjellm. ノ體ノ一部、自然大.—17: 枝ノ一部, $\frac{12}{1}$.

Ptilota asplenoides (Turn.) Ag.

Nom. Jap.: Katawa-benihiba.

PL. XLVIII.

Ptilota asplenoides (Turn.) Ag. Sp. I, p. 387; J. Ag. Sp. Alg. II, p. 98; Id. Epicr. p. 77; De Toni Syll. Alg. IV, p. 1379.—*Fucus asplenoides* Turn. Hist. Fuci t. 62.—*Rhodocallis asplenoides* Kuett. Sp. Alg. p. 671; Id. Tab. Phyc. XII, t. 58.—*Pterota asplenoides* Cram. Ceram. p. 46, t. VII, fig. 6-10.

Hab.: On rocks between tide-marks. Isl. Shimushu; Isl. Urupp; Isl. Kabafuto; Provs. Nemuro, Kushiro and Hidaka (Hokkaido).

PL. XLVIII. Fig. 1: tetrasporic frond of *Ptilota asplenoides* (Turn.) Ag. in nat. size.—Fig. 2: younger branches shooting forth from the frond of the last year, $\frac{6}{1}$.—Fig. 3: cross-section of 2-years old frond, $\frac{22}{1}$.—Fig. 4: half of the longitudinal section of frond; α , the central axis, $\frac{21}{1}$.—Fig. 5: portion of the cross-section of frond, showing the medullary filaments around the axis, α , $\frac{39}{1}$.—Fig. 6:

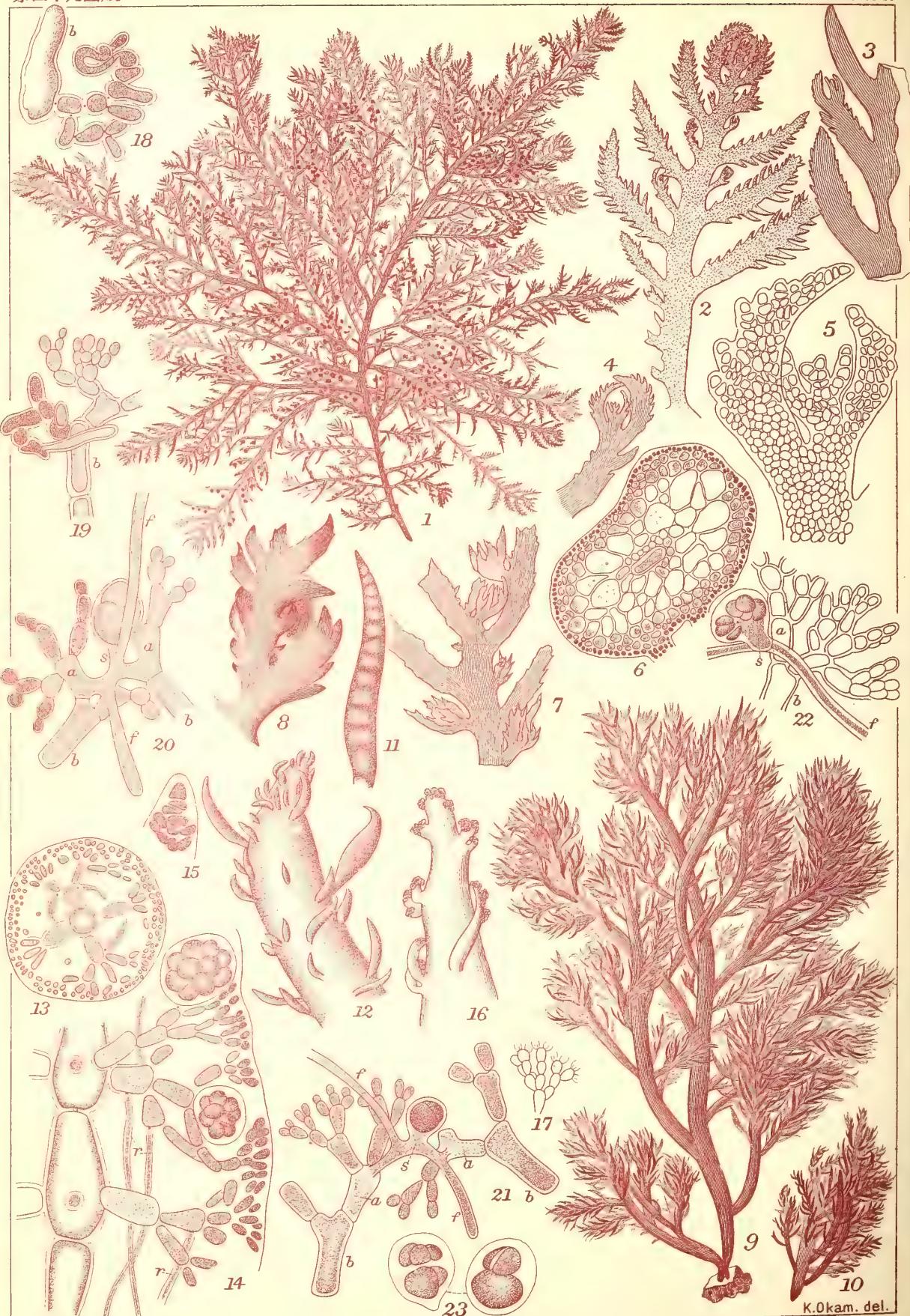
portion of sterile frond (from Isl. Kabafuto), $\frac{1}{1}^2$.—Fig. 7: upper portion of a branch of tetrasporic frond, $\frac{1}{1}^2$.—Fig. 8: portion of a compound pinna which is transformed into tetrasporic ramuli, $\frac{39}{1}^0$.—Fig. 9: fully formed tetrasporic pinnae, $\frac{5}{1}^4$.—Fig. 10: cross-section of a tetrasporic pinna, $\frac{22}{1}^0$.—Fig. 11: portion of the tetrasporic pinnellae, $\frac{22}{1}^0$.—Fig. 12: portion of a branch bearing cystocarps, $\frac{8}{1}$.—Fig. 13: cystocarp, $\frac{5}{1}^4$.—Fig. 14: one of involucres detached and spread out by pressing (from Isl. Kabafuto), $\frac{9}{1}^1$.—Fig. 15: portion of the same, $\frac{39}{1}^0$.

Ptilota asplenoides (Turn.) Ag.

かたわべにひば.

第 XLVIII 圖版.

體ハ複羽狀ニシテ下部概々多少明ナル一條ノ短ギ幹ヲナシ、多數ノ主枝ニ分レ、主枝各幹ノ如キ狀ヲ呈スルコトくしへにひばニ同ジ、而シテ本植物ハ多年生ナルヲ以テ老者ハ體ノ下部時ニ甚シク肥大シテ幅3 mm.ニ達シ高サ30 cm.余ニ達ス。主枝ハ扁平ニシテ兩緣ニ薄ク中肋ヲ存スレドモ、中肋ハ只中央線ノ少シク肥厚セルノミニシテ中肋ノ如クナラズ、而シテ羽狀ニ分枝シ、枝ノ配置大小不規則ナリ。羽枝即チ枝ノ兩緣ヨリ出ルモノハ對生ニシテ二種アリ、一ハ單性ニシテ一ハ複性ナリ。單性ノ羽枝ハ概々大ニシテ分枝スルコトナク、複性ノ羽枝ハ小ニシテ羽狀ニ分枝スレドモ、往々甚ダ微小ニシテ不明ナルコトアリ；故ヲ以テ羽枝ハ外見上屢々互生ノ如ク見ユ；而シテ複性ノ羽枝ハ往々數個同一側ニ並列ス。單性ノ羽枝ハ全緣若クハ鈍鋸齒ヲ存シ、葉狀ヲナス。—四分胞子群ハ概々複性ノ羽枝ヨリ變ジ、群ハ團塊又ハ俵狀ノ胞子托狀ニシテ其發生ノ狀況及ビ成熟セルモノノ構造等ハくしへにひばノ條下ニ説キ



Ptilota californica Rupr. かじきむべひば Fig. 1-8.

Calosiphonia vermicularis (J.Ag.) Schm. ぬめりぐさ Fig. 9-23.

タルト同ジ。囊果ハ複性ノ羽枝ニ生ジ、短柄ヲ有シ、扁平ニシテ羽狀ニ分岐セル苞枝ヲ以テ圍マル；苞枝ハ5-7條アリ。色鮮紅色。質軟キ軟骨質ナリ。

产地：潮線間ノ岩石ニ生ズ。占守島、得撫島、樺太島、根室、釧路、日高。

分布：北冰洋、カムサツカ、露領亞米利加 (Prince William Sound)。

第XLVIII圖版。1: かたわべにひば, *Ptilota asplenoides* (Turn.) Ag., ノ四分胞子ヲ有スルモノ, $\frac{1}{1}$ —2: 前年ノ老體ヨリ幼條ヲ發シタルモノ, $\frac{6}{1}$ —3: 二年成長シタル部分ノ横斷面, $\frac{22}{1}$ —4: 體ノ縦断面ノ半分; α , 中軸, $\frac{91}{1}$ —5: 體ノ横断面ノ一部; 中軸, α , ノ周圍ニ髓部ノ絲狀細胞アルヲ示ス, $\frac{390}{1}$ —6: 實ナキ體ノ一部(樺太產), $\frac{12}{1}$ —7: 四分胞子囊ヲ有スル體ノ上部, $\frac{12}{1}$ —8: 四分胞子群トナルマキ幼キ複性羽枝ノ一部, $\frac{390}{1}$ —9: 四分胞子群ノ成熟セルモノ, $\frac{54}{1}$ —10: 四分胞子群ノ横断面, $\frac{220}{1}$ —11: 四分胞子囊ヲ有スル最小羽枝ノ一部, $\frac{220}{1}$ —12: 囊果ヲ有スル枝ノ一部, $\frac{8}{1}$ —13: 囊果, $\frac{54}{1}$ —14: 苞枝ノ一ヲ別離シ、壓ヲ加ヘタルモノ(樺太產), $\frac{91}{1}$ —15: 同上ノ枝ノ一部, $\frac{390}{1}$.

Ptilota californica Rupr.

Nom. Jap.: *Kashiwaba-benihiba*.

PL. XLIX, Fig. 1-8.

Ptilota californica Rupr. in Harv. Ner. Bor. Amer. II, p. 222; J. Ag. Epicr. p. 77; de Toni Syll. Alg. IV, p. 1378.—*Plumaria californica* Rupr. mscr. (sec. Cramer.)—*Pterota californica* Cram. Ceram. p. 49, tab. 3, fig. 7; tab. 6, f. 6; t. 8, f. 1-3.

Hab.: Kaihyoto (Robben Isl.)

PL. XLIX, Fig. 1-8. Fig. 1: frond of *Ptilota californica* Rupr. bearing cystocarps, nat. size.—Fig. 2: portion of a branch, showing arrangement of simple and compound pinnae, $\frac{8}{1}$.—Fig. 3: portion of a branch showing marginal serrature of simple pinnae standing near the apex, $\frac{54}{1}$.—Fig. 4: apical portion of a branch, $\frac{54}{1}$.—Fig. 5: showing portion of the branch shown in the fig. 4, $\frac{222}{1}$.—Fig. 6: cross-section of frond, $\frac{91}{1}$.—Fig. 7: portion of a branch bearing cystocarps, $\frac{8}{1}$.—Fig. 8: cystocarp, $\frac{42}{1}$.

Ptilota californica Rupr.

かしばべにひば 岡村稱

第XLIX圖版, 1-8圖.

體ハ扁壓若クハ略ボ扁平ニシテ兩緣ニ薄ク, 線狀, 兩緣ヨリ羽狀ニ分枝シ, 枝ハ廣闊ス, 高サ 10-15 cm. アリ. 羽枝ハ對生シテ不同, 一ハ單條ニシテ一ハ複性ナリ; 複性ノ羽枝ハ小ニシテ單條ノ羽枝ハ大キク, 其兩緣ニ鋸齒ヲ有ス. (鋸齒ハ書ニ依レバ稍不明ナル複鋸齒ナリトアリ.) 四分胞子群ハ詳ナラズ, 囊果ハ複性ノ羽枝ヨリ變成シ, 數條ノ苞枝ヲ存ス; 苞枝ハ葉狀ニシテ羽狀ニ分枝シ, 其狀稍かしはノ葉ニ類ス, 故ニ名アリ.

產地: 海豹島.

分布: カリフォルニア.

第XLIX圖版, 1-8圖. 1: *Ptilota californica* Rupr., かしばべにひばノ囊果ヲ有スルモノ, $\frac{1}{1}$.—2: 單條ノ羽枝ト複性ノモノトノ排列ヲ示ス, $\frac{8}{1}$.—3: 枝ノ頂端ニ近キ幼キ單條ノ羽枝ノ鋸齒ヲ示セルモノ, $\frac{54}{1}$.—4: 枝ノ頂部, $\frac{54}{1}$.—5: 第4圖ノ成長點ヲ示ス, $\frac{220}{1}$.—6: 體ノ横斷面, $\frac{91}{1}$.—7: 囊果ヲ有スル枝ノ一部, $\frac{8}{1}$.—8: 囊果, $\frac{42}{1}$.

Calosiphonia vermicularis (J. Ag.) Schm.

Nom. Jap.: *Numeri-gusa*.

PL. XLIX, Fig. 9-23.

Calosiphonia vermicularis (J. Ag.) Schm. Syst. Uebers. Florid. (in Flora 1889) p. 453; Born. Alg. de Schousboe p. 342; de Toni Syll. Alg. IV, p. 1643.—*Nemastoma vermicularis* J. Ag. Sp. Alg. II, p. 163.—*Lygistes vermicularis* J. Ag. Epicr. p. 119; Id. Florid. Morphol. t. 4, f. 6-10; Ardis. Phyc. Med. I, p. 134.—*Calosiphonia Finisterrae* Crouan Fl. Finist. p. 141, t. 13; J. Ag. Epicr. p. 118.

Frond is very soft, gelatinous and lubricous, almost cylindrical, or somewhat compressed, slightly narrowed at base and tapering toward apices, irregularly decompound-pinnate with branches on all sides. Branches very much densely loaded with similarly shaped branchlets. Plants are so much soft and gelatinous that when it is spread out on paper branches run together confluentely.

Plant has a central axis which terminates in a distinct apical cell separated from the next standing one by a horizontal partition. Peripheral filaments verticillately arising from every articulation of the central axis many times branch in fastigiato-dichotomous manner and the upper articulations forming submoniliform filaments coalesce to form the cortical layer. The hollow space of tubular frond is soon afterward filled up with rhizoid filaments which originate from lower articulations of peripheral filaments.

Antheridia form wart-like patches on or near the apical portion of branches and branchlets in the same frond as that bearing cystocarps; i.e. the plant is monocious. Antherozoids are produced from the uppermost cells of peripheral filaments of the portion

bearing antheridial patches. Cystocarps are minute and globular, being lodged among moniliform filaments of the cortical layer.

Development of cystocarps: Carpogonial branch is produced as a lateral branch from a lower articulation of peripheral filaments and is composed of a curved row of 5 cells, of which the cell beneath the hypogenital one is the largest and the next two cells remain as pedicel for the procarp, each of which laterally carries sterile branches. After fertilization, an ooblastema filament is set forth from the carpogonium or probably from fused cell of carpogonium and hypogenital cells, (this process, however, is unknown to me at present.) One of the lower articulations of the peripheral filaments acts as an auxiliary cell and mostly two auxiliary cells standing near to each other are acted upon by an ooblastema filament. By this way the fusion of two auxiliary cells and the ooblastema filament takes place and the latter is still protruded as to go further. From the fused region of the ooblastema filament carpospores are produced, which by repeated division form a simple minute globular nucleus of a cystocarp.

Color red. Substance very gelatinous and the plant firmly adheres to paper in drying.

Hab. On rocks and stones between tide marks. Cape Nomo, Futaye (Isl. Amakusa). Cystocarps: spring.

PL. XLIX, Fig. 9-23. Fig. 9: frond of *Calosiphonia vermicularis* (J. Ag.) Schm., $\frac{1}{1}$.—Fig. 10: portion of a branch detached, $\frac{1}{1}$.—Fig. 11: surface-view of a branchlet, very slightly magd.—Fig. 12: upper portion of a branch, $\frac{12}{1}$.—Fig. 13: cross-section of a young branchlet, magd.—Fig. 14: half of the longitudinal section of a young branch; r, r , rhizoidal filaments, $\frac{220}{1}$.—Fig. 15: growing apex of a branch, $\frac{220}{1}$.—Fig. 16: upper portion of a branch carrying

branchlets having antheridial patches, $\frac{22}{1}$.—Fig. 17: cortical filaments bearing mother cells of antherozoids, $\frac{39}{1}^0$.—Fig. 18-19: carpogonial branch produced as a lateral branch from the basal cell, b , of a peripheral filaments; fig. 18, $\frac{60}{1}^0$; fig. 19, $\frac{22}{1}^0$.—Fig. 20-22 fusion of auxiliary cells, a, a , with an ooblasteme filament, f, f , to form a cystocarp from the fused region, s ; b, b , basal cells of peripheral filaments; fig. 20-21, $\frac{49}{1}$; fig. 22, $\frac{34}{1}^0$.—Fig. 23: slightly divided gonimoblast forming a few carpospores, $\frac{60}{1}^0$.

Calosiphonia Crouan 1852.

ぬめりぐさ属.

SCHIZYMEMIEAE (NEMASTOMACEAE) ネマストマ科, シジメニア亞科.

體ハ圓柱狀或ハ稍扁圓, 粘柔ニシテ, 甚シク各方面ニ分岐シ, 内部中空ニシテ, 一條ノ中軸ヲ存ス; 幼部ハ唯中軸ノアルノミナレドモ, 老成部ニハ體腔内ヲ縱走セル根様絲アリテ往々充實ス; 而シテ中軸細胞ヨリ周圍ニ向テ枝ヲ輪生シ, 此枝屢々叉状ニ分岐シ, 其内方ノモノハ大ニシテ長ク, 其外方ノモノハ殆ド念珠狀ニシテ相集リテ皮層ヲ形成ス; 此輪生セル枝ノ下部ノ細胞ヨリ根様絲ヲ生ズ; 頂細胞ハ明ニ横ニ關節ス. 胎原列ハ餘リ多カラズ, 各三個細胞ヨリ成リ鉤状ニ屈曲ス. 助細胞ハ皮層下ニ多數ニ存スレドモ, 胎心細胞ノ受胎セザル前ニハ明ナラズ. 「オープラステマ」絲ト癒合シタル後, 助細胞ハ體ノ外面ノ方ニ成胞絲ヲ生ジ, 成胞絲ハ順次果胞子ヲ形成シ, 相集リテ團塊ヲナス. 囊果ハ皮層中ニ埋在シ, 球形多角形ノ果胞子相集リテ略ボ單塊ノ小サキ仁ヲナシ, 皮部ニ小孔ヲ開キテ開口ス. 四分胞子ハ詳ナラズ.

從來明ニ知ラレタルモノハ一種ニシテ可ナリ種々ノ形狀ヲナシテ顯ハル; 即チ地中海及ビ太西洋近傍ヨリ知ラレタル

Calosiphonia vermicularis (J. Ag.) Schmitz. (即チ *Nemastoma vermicularis* J. Ag. = *Ligistes vermicularis* (J. Ag.) ニシテ其太平洋ニ産スルコトノ知ラレタルハ今回ヲ以テ初メトス。

屬ノ名ハ *Calos* (美シキ) ト *Sipho* (圓管) トヨリ成ル。

Calosiphonia vermicularis (J. Ag.) Schmitz.

ぬめりぐさ 岡村 稔。

第 XLIX 圖版, 9-23 圖。

體ハ甚シク柔軟ニシテ粘滑、殆ド圓柱狀又ハ稍扁壓シ、基部少シククビレテ上部ニ細ク、不規則ニ複羽狀ヲナシ、各方面ニ分岐ス。枝ハ大小ノ小枝ヲ以テ甚ダ密ニ分岐シ、小枝ハ皆上下兩端ニ細シ。體質極メテ粘柔ナルヲ以テ、之ヲ紙上ニ擴グルトキハ枝皆互ニ流レ寄リテ相接觸スルニ至ル、其狀恰モもづくニ於ケルガ如シ。體ハ中空ニシテ一條ノ中軸ヲ存シ、中軸ハ明ニ一箇ノ頂細胞ヲ以テ終リ、頂細胞ハ其下ナル細胞ト水平ノ面ヲ以テ關節ス。中軸ノ各細胞ヨリ周圍ノ皮層ヲ形成スペキ枝ヲ輪生ス；此枝ハ屢々叉狀ニ分岐シ、其下部ノ細胞ハ稍長クシテ大ナレドモ上部ノモノハ稍念珠狀ニ關節シ、相集リテ皮層ヲナシ、甚シキ粘質ヲ存ス。此輪生スル枝ノ基部ニ近キ數個ノ細胞ヨリ根様絲ヲ生ジ、此絲體ノ中空ヲ縱走シテ後ニハ恰モ髓層ノ如キ觀ヲ呈スルニ至ル。——精子器ハ大小ノ小枝ノ頂部若クハ頂部ニ近ク疣狀ノ班ヲ作リテ群生シ、囊果ヲ生ズル體ト同一ノ體上ニ在リ；即チ雌雄同株ナリ。精子細胞ハ精子群ヲ形成スル部分ノ皮層ノ絲ノ最外部ノ細胞ヨリ生ズ。囊果ハ小ニシテ球狀ヲナシ、皮部ノ念珠狀絲ノ間ニ埋リテ存ス。色ハ紅色；質粘柔ニシテ紙ニ密着ス。

囊果形成ノ順序。胎原列ハ中軸ヨリ輪生スル枝ノ基部ニ近キ細胞ノ側枝トシテ生ジ、3個ノ細胞ヨリ成レル屈曲セル列ヲナス；其上端ノ細胞ハ胎心細胞ニシテ受精毛ヲ戴キ、其次ノ細胞ハ胎心下細胞ニシテ、更ニ其下ニ一個ノ大ナル胎心下細胞アリ；而シテ之ニ次グ二個ノ細胞ハ受胎作用ニハ關係ナキモノニシテ、胎原列ノ柄ト見ルベク、其各細胞ヨリ中性ノ枝ヲ生ズ。胎心細胞ノ受胎シタル後、其細胞若クハ此ト二個ノ胎心下細胞ト癒合シタルモノ（多分ハ其癒合シタルモノヨリスルナラント雖モ此現象ハ予之ヲ確ムル能ハザリシ）ヨリ「オープラスマ」絲ヲ發出ス。輪生スル枝ノ下部ノ關節ノ一個ハ助細胞トナリ（20-22圖a），其接近シテ存スル二個ノ助細胞相共ニ一條ノ「オープラスマ」絲ノ作用ヲ受ケテ癒合シ、此癒合シタル細胞ノ一部ヨリ胞子ヲ形成ス（20-22圖s）。「オープラスマ」絲ハ一且助細胞ト癒合シタル後更ニ伸長シテ他ノ助細胞ニ向ヒ、其作用ヲ逞フセントスルモノ、如シ（20-22圖f）成胞絲ハ初メ一二ノ細胞ニ分裂スルノミナレドモ（23圖）、後漸次分裂シテ多數ノ果胞子トナリ、不規則ニ團集セル單塊狀ノ仁ヲナス。

產地：潮線間ノ岩石ニ生ジ稍靜ナル所ニ在リ。野母（肥前）、二江及坂瀬川（天草島）。

分布：地中海；太西洋（英國及佛國）；スペイン（Gades）；アフリカ（Tingin）。

第 XLIX 圖版，9-23圖。**9**: *Calosiphonia vermicularis* (J.Ag.) Schmitz, ぬめりぐさ、ノ體、**1-10**: 枝ノ一ヲ離シテ示ス、**1-11**: 小枝ノ表面ヨリ内部ヲ透視シタルモノ、少シク廓大。**12**: 枝ノ上部。**12-13**: 幼キ小枝ノ横斷面、廓大。**14**: 幼キ枝ノ縦斷面ノ半分；

r, r, 根様絲, $\frac{220}{1}$.—15: 枝ノ成長點, $\frac{220}{1}$.—16: 精子群ヲ生ジタル
小枝ヲ有スル枝ノ上部, $\frac{22}{1}$.—17: 精子細胞ヲ有スル皮層絲, $\frac{390}{1}$.
—18-19: 中軸ヨリ輪生スル枝ノ基部ノ細胞, *b*, ヨリ側枝トシテ
胎原列ヲ生ジタルモノ; 18: $\frac{600}{1}$; 19: $\frac{220}{1}$.—20-22: オープラス
テマ絲, *f, f*, ト助細胞, *a, a*, ト癒合シテ *s* ナル部分ヨリ囊果ヲ
形成スルモノ; *b, b*, 輪生枝ノ基部ノ細胞; 20-21; $\frac{49}{1}$; 22, $\frac{340}{1}$.—
23: 成胞絲ノ僅ニ分裂シテ數個ノ果胞子ヲ生ジタルモノ, $\frac{600}{1}$.

Ceramium Boydenii Gepp.

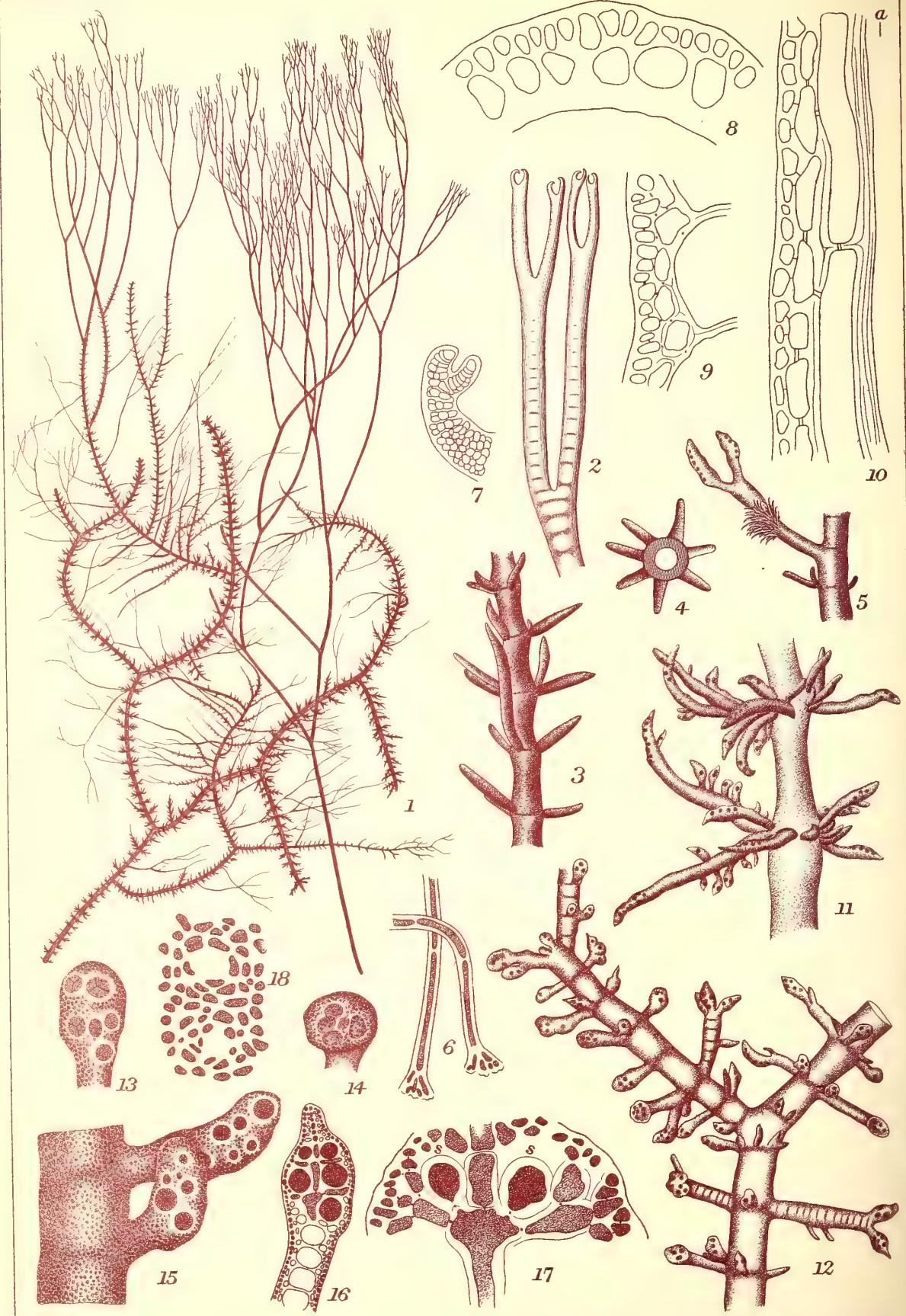
Nom. Jap.: *Igisu*.

PL. L.

Ceramium Boydenii Gepp Chinese Marine Algae (Journ. of Bot. Vol. 42, 1904) p. 164, Pl. 460, Fig. 1-3.—*C. rubrum* (non Ag.) Okam. 日本藻類名彙 p. 82.

The present plant has been fully described by Gepp and from the illustrations here given no further details will be needed. Only I am here to add a few remarks on its habit, size and apical characters of branches.

It forms usually a large mass of laxly interwoven filaments growing often entangled with the branches of other larger algae such as *Sargassum* etc. Younger portion is more regularly dichotomous than older portion of frond, and the apices of ramuli are either straight or slightly curved, but not strongly forcipated, as Gepp has already remarked, like most species of *Cramium*.



K.Okam. del.

13 15 16 14 1 6 7 17 3 2 4 9 8 12 11 5 10

Ceramium Boydenii Gepp. いきす。

Hab.: Very common along both coasts of this country; entangled on the branches of *Sargassum* etc. Provs. Hizen, Shima, Mikawa, Sagami, Boshyu, Rikuzen, Mutsu, Yechizen, Noto, Uzen, Ishikari, Teshiwo. Stichidia late spring (Enoshima).

PL. L. Fig. 1: robust (fertile) and younger (sterile) portion of *Ceramium Boydenii* Gepp, $\frac{1}{4}$.—Fig. 2: terminal portion of a young ramulus, $\frac{12}{1}$.—Fig. 3: lower portion of frond (0.5 mm. in diam.) bearing verticillately arising ramuli, $\frac{8}{1}$.—Fig. 4: cross-section of the same frond as fig. 3, $\frac{12}{1}$.—Fig. 5: root-fibres produced from a fertile ramulus, $\frac{12}{1}$.—Fig. 6: two root-fibres detached, $\frac{9}{1}$.—Fig. 7: apical portion of a ramulus, $\frac{220}{1}$.—Fig. 8: portion of the cross-section of frond, $\frac{220}{1}$.—Fig. 9: portion of the longitudinal section of upper branch showing the structure of cortical layer, $\frac{220}{1}$.—Fig. 10: half of the longitudinal section of lower portion of frond showing two layers of intermediate cells; α , the axial cell, $\frac{220}{1}$.—Fig. 11-12: portions of branches bearing fertile ramuli, $\frac{12}{1}$.—Fig. 13-15: tetrasporiferous ramuli viewed from various sides, $\frac{54}{1}$.—Fig. 16: longitudinal section of a fertile ramulus, $\frac{54}{1}$.—Fig. 17: section showing tetrasporangia, s , s , originating from the axial cell, $\frac{220}{1}$.—Fig. 18: surface view of the cortical layer extending over tetrasporangia, $\frac{220}{1}$.

Ceramium Boydenii Gepp.

い ぎ す

第 L 圖 版.

Ceramium (Roth) Lyngbye 1819 (い ぎ す 屬) の 性 質 ハ 日 本 海 藻 圖 說 第 一 卷, 第 四 冊, 第 六 三 頁, 第 十 七 圖 版 ノ 條 下 ニ ア リ

體 ハ 絲 狀 ニ シ テ 甚 シ ク 錯 綜 ツ, 往々 大 ナ ル 塊 ヲ ナ シ テ ほ ん だ わ ら 其 他 ノ 海 藻 ニ 繼 絡 ス. 始 メ ハ 稍 規 則 正 シ ク 叉 狀 ニ

本岐スレドモ，後漸ク不規則トナリ，殊ニ老成スルモノハ其節々ヨリ小枝ヲ輪生シ，且ツ小枝若クハ枝ノ節々ヨリ毛狀根ヲ叢生スルニ依テ互ニ付着錯綜スルヲ以テ，甚シク紛亂スルニ固ル。小枝ハ單獨ニ生ジ，或ハ對生シ，或ハ輪生シ，長サ 1-2 mm. ニシテ，單條又ハ不規則ニ分岐ス。體ハ全部皮層細胞ヲ以テ蔽ハレ，皮層細胞ハ中層ノ細胞ヨリ分裂シテ生ジ，中層ハ老成部ニアリテハ二層ヨリ成ル。枝ノ頂端ハ直立シ或ハ僅ニ屈曲スレドモ，此屬ノ他ノ種類ノ如ク著シク内方ニ卷曲スルコトナシ。節間ノ長サハ概子其直徑ニ等シキカ或ハ一倍半乃至二倍長ク，上部ニアリテハ短クシテ互ニ相接近ス。四分孢子囊ハ小枝ニ生ジ，或ハ圓頭狀ヲナセル部分ニ不規則ニ埋在シ，或ハ屈曲セル小枝ノ凸面ニ沿フテ一列若クハ稍二列ニ並ブト雖モ，其配置ハ概子不規則ナリ；而シテ十字様又ハ三角錐様ニ分裂シ中軸細胞ヨリ形成セラル。囊果ハ詳ナラズ。色ハ紅色；質ハ稍軟骨様ニシテ柔カク，紙ニ付着セズ。

產地：各地沿岸ニ普ク，ほんだわら類ノ枝ニ卷絡スルコト多シ。肥前唐津，志摩，三河，相模，安房，陸前，陸奥，越前，能登羽前，小樽，天鹽。四分孢子：—四五月頃（江ノ島）。

分布：清國威海衛（Boyden 氏）。

本種ハ凍瓊脂製造用トシテ石花菜ニ混用ス（信州ニテハ主トシテ原料ヲ青森地方ヨリ齎シ，おきてんト稱ス，沖ノ天草ノ意ナリ，京坂地方ニテハ之ヲ使用スル否ヤヲ詳ニセザレドモ多分用キルナラン）；又之ヲ晒シ，青，紅等ノ色素ヲ以テ染メタルモノト晒白シタルモノトヲ三縞海苔ト稱シテ精進料理，押鮓ナドノ色彩ニ用フ；故ヲ以テいざりす（奥羽），あみくさ（志摩），おきてん（青森）等ノ名アリ。

第 L. 圖版. 1: *Ceramium Boydenii* Gepp, いぎす, ノ老成セル部分ト幼キ新條トヲ示ス, 1.—2: 枝ノ上部, 12.—3: 體ノ下部直徑 0.5 mm. アリ) ニシテ小枝ヲ輪生スル狀, 8.—4: 第 3 圖ニ示シタルモノノ横斷面, 12.—5: 四分胞子囊ヲ有スル小枝ヨリ毛狀根ヲ生ジタルモノ, 12.—6: 毛狀根, 91.—7: 小枝ノ成長點, 200.—8: 體ノ下部ノ横斷面ノ一部, 200.—9: 上部ノ枝ノ縦斷面ノ一部ニシテ皮層ノ構成ヲ示ス, 220.—10: 體ノ下部ノ縦斷面ノ半分ニシテ中層細胞ノ二層ナルヲ示ス; a, 中軸細胞, 200.—11—12: 四分胞子囊ヲ熟シタル小枝, 12.—13—15: 四分胞子囊ヲ有スル小枝ヲ各方面ヨリ見タルモノ, 54.—16: 四分胞子囊ヲ有ス小枝ノ縦断面, 54.—17: 中軸細胞ヨリ四分胞子囊ノ生ズル狀ヲ示ス, 220.—18: 四分胞子囊ヲ蔽ヘル部分ノ皮層ヲ表面ヨリ見タルモノ, 200.

屬之語原（補遺）

日本海藻圖說ハ曩キニ其第一卷第六冊マテチ出版シ、完結スルニ至ラズシテ中途廢刊スルノ止ムヲ得ザルニ至リタルが故ニ、今本圖譜ヲ以テ之ヲ繼續シ、茲ニ其第一卷ヲ完了スルニ當リ、以下圖說中ニ出シタル屬名ノ語源ヲ示ス。

第一冊分

Yatabella： 恩師理學博士故矢田部良吉先生ノ名譽ノ爲ニ設ケタルニテ ella ハ小サキ意ナレドモ茲ニハ別ニ大小ヲ意味スルニアラズ唯 Yatabea ト云フベキヲ前既ニ此名ノ屬アルヲ以テ夫ト區別シタルノミナリ。

Gelidium： gelu (霜) ト云フヨリ gelatine ト云フ意ヲ含メルニ因ル。

Microcoelia： micros (小) ト coilos (中空) トヨリ成ル。

Herposiphonia： herpo (匍匐スル) ト siphon (管) トヨリ成ル；即チ匍匐スル多管軸ヨリ成ルノ意。

Chlorodesmis： chloras (綠色) ト desme (絲ノ束) トヨリ成ル。

第二冊分

Acanthopeltis： acantha (棘) ト pelte (楯) トヨリ成ル；即チ楯狀ヲナセル圓キ小枝ノ兩面ヨリ棘狀突起ヲ有スルニ取レリ。

Hypoglossum： hypo (亞グ、稍) ト glossa (舌) トヨリ成ル；即チ稍舌狀ノ如キ體形ニ取レルナリ。

Hemineura： hemis (半分) ト neura (中肋) トヨリ成ル；即チ中肋互ニ相連絡セザルニ取レリ。

Digenea： dis (二様) ト genea (出來方) トヨリ成ル；即チ普通ノ枝ニ剛毛ノ如キ枝アルニ依ルカ。

Phyllitis: 此屬ハ誤ニシテ Endarachne ト改ムベキモノナリ；其屬ノ性質及語源ハ次頁正誤欄内ニアリ。

第三冊分

Stenogramma: stenos (細キ) ト gramme (線) トヨリ成ル；即チ囊果ノ線狀ヲナセルニ依レルナラン。

Isoptera: Isos (等シキ) ト pteron (翼) トヨリ成ル；即チ同一ノ形シタル半羽狀ノ毛狀葉二個ヅ、互生スルニヨレリ。

Neurymenia: neuron (中肋) ト hymen (膜) トヨリ成ル；即チ中肋アル葉狀ノ體ニ取レリ。

Amansia: 佛國ノ海藻學者 M. Amans 氏ノ名譽ノ爲ニ設ケタルナリ。

Boodlea: 英國ノ海藻學者 Leonard Boodle 氏ノ名譽ノ爲ニ設ケタルナリ。

第四冊分

Erythrococolon: erythros (紅色) ト colon (大腸) トヨリ成ル；即チ體ノ形狀ト色トニ依レリ。

Ceramium: ceramion (壺狀) ヨリ成ル；即チ囊果ノ壺狀ナラザル故ナリト云フ。或ハ ceras (角) ヨリ成ル；即チ枝端往々叉狀ヲナスニ依ルト云フ。

Ptilota: ptilotos (羽狀) ヨリ成ル；即チ體形ニ取レルナリ。

Myelophycus: myelos (髓) ト phycos (海藻) トヨリ成ル。元ト Chordaria (もづく屬) ノ一一種ト思ハレタルヲ此屬ニ革メタルモノユヘ、多分髓層アルヲ以テ之ト異ナルヨリ髓ノ字ヲ用キタルニ依レルモノナラン。

Chorda: chordae (紐) ヨリ成ル；即チ體形ニ依レリ。

第五冊分

Callophyllis: callos (美シキ) ト phylon (葉) トヨリ成ル。
Gracilaria: gracilis (細キ) ヨリ成ル; 即チ體形概子細キ紐狀ノモノ多ケレバナリ。
Champia: 佛國ノ植物學者 Deschamps 氏ノ名譽ノ爲メ。

第六冊分

Lomentaria: lomentum (節莢) ヨリ成ル; 即チ體ノ諸所節莢ノ如ククビレタルニ取レリ。
Phacelocarpus: phacelos (束) ト carpos (果) トヨリ成ル; 即チ果實ノ根棒狀ナルニ因ル。
Cutleria: 圖譜第一卷第四集ニ説明アリ。
Cladophora: clados (枝) ト phoreo (持ツ) トヨリ成ル; 即チ枝多キニ因ルナラン。
Rhipidiphyllon: rhipos (少サキ扇) ト phylon (葉) トヨリ成ル; 即チ體形ニ因レルナリ。

ERRATA 正誤

Phyllitis Fascia (Muell.) Kuettz. in the *Illustrations of the Marine Algae of Japan* Vol. I, No. 2 Pl. X. should be *Endarachne Binghamiae* J. Ag (the author has already corrected this error in his "Contents of the Alg. Jap. Exsic. Fasc. II," no. 86 (Bot. Mag. Tokyo Vol. XVII, no. 197, 1903, p. 131)

Icones p. 2: 17th line from above put C. *Iwai-zaki* (Prov. Rikuzen).
,, p. 38: 11th „ „ „ Kugami (Prov. Inaba)
,, p. 43: For the explanation of Plate of *Enantiocladia latiuscula* (Harv.) Okam. see p. 177.
,, p. 51: 1st line from below put *Kudzira-nami* (Prov. Yechigo).
,, p. 58: 8th line from above put *Yotsukura* (Prov. Iwaki)

Icones p. 65: 6th line from below read *auxiliary* for *auxillary*.

„ p. 66: 3rd line from above „ „ „ „ „

„ p. 66: 10th „ „ „ „ „ „ „

„ p. 66: 16th „ „ „ „ „ „ „

„ p. 66: 17th „ „ below „ „ „ „ „

„ p. 139: put PL. XXIX between 7th and 8th line from above.

予ノ日本海藻圖說第一卷第二冊第十圖版 *Phyllitis Fascia* (Muell.) Kütz. ハ誤ニシテ *Endarachne Binghamiae* J. Ag. ト改ムベキモノナルコトハ既ニ植物學雜誌第十七卷第百九十七號 153頁並ニ歐文欄 p. 131 ニ於テ予ノ日本海藻標品第二帙第86號ヲ以テ訂正シタリ; 依テ圖說第一卷第二冊第三五頁 *Phyllitis* ノ項ハ全然抹殺シ尙同頁ノ下ヨリ二行ヲ殘シテ他ヲ下ノ如ク改ム。又同圖說歐文 PL. X ノ一頁即チ 27 頁ノ出典ヲ舉ゲタル行數五ト第三五頁ノ同ジク出典ヲ示シタル五行トハ之ヲ *Endarachne Binghamiae* J. Ag. Anal. Alg., Cont. III, p. 27, Tab. 1, f. 3 ト改ムルヲ要ス。以下 *Endarachne* 屬ノ性質ヲ舉グ。

第十圖版

Endarachne J. Ag. 1896.

は シ の り 屬

ENCOELIACEAE. ふくろのり科.

體ハ扁平、葉狀、單條ニシテ中肋ナシ、三層ヨリ成ル; 體層ハ細長キ絲狀細胞ノ主トシテ縱走セルモノヨリ成リ往々錯綜ス; 中層ハ一二層ノ圓形一多角形ノ密接セル「バレンキマ」細胞ヨリ成ル; 外層ハ中層細胞ノ約二分ノ一程小ナル皮層細胞ヲ以テ成ル。子囊群ハ始メ班點ノ如ク生ジ後殆ド全面ヲ

蔽フニ到ル；複子囊ハ稍稜柱狀ニシテ二個乃至四個相集リ，關節シ，關節ハ四個細胞ヨリ成ル。

J. Agardh 氏ノ與ヘタル性質ハ上ノ如シト雖モ複子囊ノ關節ハ本邦產ノモノニテハ四個以上ナリトス。本屬ハふくろのり科ニ屬シ Phyllitis 屬ニ最モ近シトス。——屬ノ名ハ endos (内部) ト aarachne (蜘蛛ノ網) トヨリ成ル；即チ體ノ内部ニ絲狀細胞アルニ因ルナリ。

本種ハ California 沿岸ニテ採集セラレタル標本ニ就テ J. Agardh 氏ノ記載シタルモノナリ。故ニ日本海藻圖說第一卷第二冊第三六頁既地產地ノ二行ヲ抹殺シ「カリホルニア」沿岸ト改ム。

以下圖譜ノ正誤（和文ノ分）

- p. 4. 上ヨリ 6 行 陸前磐井岬ヲ加フ。
- p. 9. 下ヨリ 7 行 奇ハ寄ノ誤。
- p. 39. 上ヨリ 10 行 因幡陸上 (クガミ) ヲ加フ。
- p. 54. 下ヨリ 12 行 越後鯨波ヲ加フ。
- p. 59. 上ヨリ 7 行 函館ノ次ヘ磐城四ツ倉ヲ加フ。
- p. 82. 下ヨリ 6 行 四ハねノ誤。
- p. 173. 上ヨリ 3 行 XXXIV ハ XXXV ノ誤。

學語解

學語ハ予ノ日本海藻屬名檢索表及ビ海藻學汎論(初版及初版へ追加シタル分共)ニ掲ゲタルモノ、外日本海藻圖說ノ各集ニ其時々用#タルモノヲ掲ゲタリ。今便宜ノ爲メ海藻圖說ニ掲ゲタルモノト本圖譜トニ載セタルモノトヲ下ニ列記ス; 依テ語解ハ夫々ノ處ニ就テ知ルベシ。

(説 I) トアルハ圖說第一冊ノ略ニシテ同書ニ付シタル學語解ナ
リ他ハ之ニ準ズ; (譜 44) トアルハ圖譜 p. 44 等ナリ。

軸	axis, rachis...	(説 I)	主枝	Hauptspross ... (説 III) {main branch
背面	dorsal side ...	"	最末位	ultimate "
長條	Langtrieb ...	"	羽枝	pinnate "
短條	Kurztrieb ...	"	小羽枝	pinnulae "
全長	whole length	"	半羽狀	semipinnate ... (説 154)
直出	straight...	"	倒心臟形	obcordate (説 III)
早落	deciduous ...	"	散生	scattered "
断續	{discontinuous broken	"	斜上	ascending "
波紋	undulate ...	"	テナキユラ	tenaculum "
臍形	umbilicate ...	"	無限枝	unbegrenzte Spross (説 IV)
廣開	patent ...	"	有限枝	begrenzte Spross "
幅狀	radial ...	"	成實枝	{Frucht Spross " fertile branch
循狀	peltate ...	"	後生的	{secundär " adventive
精子器	antheridia ...	"	中性	neutral "
胞子層	hymenium ...	"	コンフェルバ様	confervoid "
覆瓦様	imbricate ...	"	根絲細胞	Rhizoid (説 IV)
下部先長	acropetal ...	(説 II)	根樣細胞	{Berindungsfäden ... (譜 31 等)
頂部後生	endogen ...	(説 I)	パラスポール	{paraspore or polyspore (説 IV)
内長性	exogenous ...	(説 152)	類化絲	{Assimulationszelle " assimilatory filament
外長性	exogenous ...	(説 152)	前苗體	{prothallium " Vorkeim
毛, 毛狀體	fibrillae		健成根	Verstärkungsrhizin. (説 VI)
毛狀葉	Haarblättern (説 II, 譜ノ所々)		脈間細胞	Zwischenzelle ... (説 VI)
毛狀枝	hair-leaf		助間細胞	intervening cells ... (譜 199)
假葉	phyllodium ...	(説 II)	苞枝	Involucres (譜 6)
波狀	repand ...	"	毛基細胞	basal cell of a hair-leaf (説 15, 29, 31)
簇生	gregarious ...	"	翼列細胞	Flügelzellen ... (譜 45)
副出	{proliferate ... prolific	(説 III)	仁柄細胞	Stielzelle (譜 94)
副枝	{proliferated or proliferous branch	"	被膜	inducium (譜 111)
楔形	{cuneiform ... cuneate	"	頂毛成長	trichothallie growth (譜 191)
扇狀	{flabelliform fan-shaped	"		

INDEX.

索引

In concluding this first volume of the *Icones* for reader's sake is added here the complete Index covering the *Icones* and the *Illustrations of the Marine Algae of Japan* which was unfortunately discontinued.

Roman and Arabic numerals (pages and plates) in Italic and *Japanese ones* refer to the *Illustrations*; all the rest, to the *Icones*. *Scientific names* in Italic indicate the *synonyms*.

茲ニ第一巻ヲ了ルニ當リ、予ノ叢キニ著シタル日本海藻圖說ト本圖譜第一巻トノ索引ヲ掲グ。

草體ノ羅馬及ビ亞刺比亞數字並ビニ日本數字ハ圖說ノ分ニ屬シ、他ハ圖譜ノ分トス。羅馬數字ハ頁數ニシテ亞刺比亞數字ハ圖版ナリ。草體ノ學名ハ異稱ナリ。

A

Acanthopeltis Okam. 一九。
Acanthophora Lmx. 35.
acetosa Okam. (*Tabacopsis*) 137.
Acrocystis Zanard. 29.
acuminata Holm. (*Grateloupia*) 174.
acuminata (Holm.) J. Ag. (*Halymenia*) 174, 176,
XXXV.
adspersa (Roth) De Not. (*Cutleria*) 84, 85,
XIX.
adspersa Roth (*Ulva*) 84.
adspersa J. Ag. (*Zonaria*) 85.
aglaophylloides Zanard (*Acrosorium*) 121.
Amansia Lmx. 五一.
Anadyomene Lmx. 198.
anastomosans Harv. (*Cladophora?*) 203.
Andoi Okam. (*Bostrychia*) 102, 103, XXII.
Apoglossum J. Ag. 149.
armata (Kuetz.) Okam. (*Chondria*) 69, 72, XVI.
armata Kuetz. (*Lothier*) 69.

Asparagopsis Mont. 136.

aspleniooides Turn. (*Fucus*) 239.

aspleniooides Cram. (*Pterota*) 239.

aspleniooides (Turn.) Ag. (*Ptilota*) 239, 240
XLVIII

aspleniooides Kuetz. (*Rhodocallis*) 239.

B

baltica Kuetz. (*Corynophloea*) 80.
baltica Kuetz. (*Corynophora*) 80.
barbatum Okam. (*Hypoglossum*) 19, VII, 二三.
bifida Okam. (*Champia*) 67, XXIV, 九五.
Binghamie J. Ag. (*Endarachne*) 254, 255, X.
Boodlea Murray et De Toni 五五.
Bostrychia Mont. 98.
Boydenii Gepp (*Ceramium*) 248, 249, L.
brachiacanthum Kuetz. (*Centroceras*) 47, 六五.

C

Cabrerae (Clem.) Kuetz. (*Carpomitra*) 61, 63,
XIV-XV.

Cabrerae Turn. (*Fucus*) 61.
calamistrata Mont. (*Bostrychia*) 96.
californica Rupr. (*Plumaria*) 241.
californica Cram. (*Pterota*) 241.
californica Rupr. (*Ptilota*) 241, 242, XLIX.
californicum J. Ag. (*Stenogramma*) 29, 三八.
Callophyllis Kuetz. 八五.
Caloglossa (Harv.) Ag. 180.
Calosiphonia Crouan. 245.
cancellatus Bory (*Hydroclathrus*) 18, 19, IV-V.
cancellatus Kuetz. (*Hydrodictyon*) 18.
Capensis Kuetz. (*Carpomitra*) 61.
Carpolepharis Kuetz. 8.
Carpomitra Kuetz. 62.
catenata J. Ag. (*Chylocladia*) 75, —〇四.
catenata Harv. (*Lomentaria*) 75, —〇四, XXVI.
Catenella Grev. 196.
Ceramium (Roth) Lyngbye 六三.
Champia Desvaux. 七五.
Chilensis (J. Ag.) Schm. et Hauptfl. (*Callophyllis*) 7, —〇.
Chilensis J. Ag. (*Microcoelia*) 7, III, —〇.
Chlanidote J. Ag. 114.
Chlorodesmis Harv. —七.
Chondria Ag. 14.
Chorda Stackh. 七五.
chytraphora Kuetz. (*Carpomitra*) 61.
Cladophora Kuetz. —二一.
clathratum Kuetz. (*Encoelium*) 18.
clathrus J. Ag. (*Asperococcus*) 18.
clavulatum Mont. (*Centroceras*) 47, 六四.
clavulatum Ag. (*Ceramium*) 47, XVII, 六四.
coacta Dickie (*Cladophora*) 41, 五五.
coacta (Dickie) Murray et De Toni (*Boedlea*) 41,
XV, 五五.
Espositus (Harv.) Kjellm. (*Myelophycus*) 53,
XIX, 七三.
collaris (Ag.) J. Ag. (*Gymnosorus*) 109, 111,
XXIV.
collaris Ag. (*Zornia*) 109.

Colpomenia Derb. et Sol. 87.
comosa (Bail et Harv.) Murr. et Bood. (*Avrainvillea*) 13, —七.
comosa Bail et Harv. (*Chlorodesmis*) 13, V, —八.
complanata Harv. (*Endocladia*) 129, 133, XXVII-
XXVIII.
contorta Rupr. (*Dumontia*) 65.
Corallinae (Mart.) Fkb. (*Herpochondria*) 5.
Corallinae (Mart.) Okam. (*Microcladia*) 5, 6, I-II
Corallinae Mart. (*Rhizophyllis*) 5.
coriacea Holm. (*Glossophora*) 105.
coriacea (Holm.) Okam. (*Pachydictyon*) 105,
108, XXIII-XXIV.
crassa Suring. (*Mesogloia*) 89, 91, XX.
crassicaulis Harv. (*Chondria*) 12, 14, III.
crassicaulis J. Ag. (*Chondria*) 69.
crassicaulis J. Ag. (*Chondriopsis*) 69.
crassicaulis Harv. (*Rhodomela*) 69.
cryptacanthum Kuetz. (*Centroceras*) 47, 六四.
Cutleria Grev. ——五.
cylindrica Okam. (*Cutleria*) 85, XXVIII, ——六.
Cylindrocarpus Crouan. 21.

D

decumbens Okam. (*Chlanidote*) 112.
delicatula Kuetz. (*Struvea*) 203, 204, XL.
delilei Harv. (*Acanthophora*) 38.
Delesseia Lmx. 141.
dentata Okam. (*Ptilota*) 49, XVIII, 六八.
Desmarestia Lmx. 190.
Dictyosphaeria Decne. 206.
Diesingiana J. Ag. (*Zonaria*) 16, 17, IV.
disformis (L.) Aresch. (*Leathesia*) 80, 82, XVIII
disformis L. (*Tremella*) 80.
Digenea Ag. 三一.
divaricata Okam. (*Haliseris*) 53, 58, XIII-XIV.
divaricatum Martens (*Gelidium*) 5, II, 六.
Dumontia Lmx. 66.

10

elegans Okam. (*Microcladia*) 1, 3, I.
Enantiocladia Fkbg. 43.
Endarachne J. Ag. 255.
Endocladia J. Ag. 132.
Erythrocolon J. Ag. 五九.
Eudesme J. Ag. 79.
Euzoniella Fkbg. 152.

四

furcellata Kuetz. (*Myelomium*) 10.

furcellata (Turn.) Biv. (*Scinaia*) 10, 12, II-III.
furcellata Turn. (*Ulva*) 10.

6

Gastroclonium Kuetz. 75.
 Gelidium Lmx. 五.
 geminatum Okam. (Hypoglossum) 156, 157,
XX II.

1

Haliseris Targ.-Tozz. 53.
 Halymenia J. Ag. 175.
 Hemineura Harv. 二七.
 Herposiphonia Naegeli 一三.
 hirsuta Okam. (*Yatabella*) I, I, —.
Hornemannia Suhr (*Mesogloia*) 78.
 horrida Okam. (*Grateloupia*) 167.
 hyalacanthum Kuetz. (*Centroceras*) 47, 六五.
 Hydrocathrus Bory 19.
 Hypnea Lmx. 47.
 Hypoglossum Kuetz. 一三.

1

inerme Kuetz. (*Centroceras*) 47, 六四.
intermedia Sur. (*Gigartina*) 172, 173, XXXV.
interrupta (Ag.) Mont. (*Stenogrammia*) 29, XI,
 三八.

三

japonica Okam. (*Acanthopeltis*) 15, 16, 一九, VI.
japonica (Holm.) Okam. (*Amansia*) 39, XIV,
五二; 95, 96, XXI.

japonica Okam. (*Callophyllis*) 63, XXII, 八七.

japonica Okam. (*Delisea*) 139, 142, XXIX.

japonica Harv. (*Suhria*) 57, 七九.

ponicum (Harv.) Okam. (*Gelidium*) 57, 七九.

XXI.

φ niuum (Harv.) Schm. (*Torphyroglossum*) 57, 七九.

onius Okam. (*Phacelocarpus*) 79, 一〇八.

XXVII.

L

lacerata Kuetz. (*Cryptopleura*) 121.

laceratum var. *uncinatus* Turn. (*Fucus*) 121.

lancifolia Harv. (*Gigartina*) 167.

lancifolia (Harv.) Okam. (*Grateloupia*) 167, 170,

XXXIV.

latiuscula (Harv.) Okam. (*Enantiocladia*) 42, 45,
IX-X.

latiuscula Okam. (*Haliseris*) 59, 60, XIV.

latiuscula Harv. (*Rytiphloea*) 42.

Leathesia Gray 82.

Leprieurii (Mont.) J. Ag. (*Caloglossa*) 179, 181,
XXXVI-XXXVII.

var. *alternifolia* Okam. 179.

var. *continua* Okam. 179.

Leprieurii Mont. (*Delesseria*) 179.

Leprieurii Kuetz. (*Hypoglossum*) 179.

leptacanthum Kuetz. (*Centroceras*) 47, 六四.

lobata Ag. (*Zonaria*) 116.

lobatum Kuetz. (*Stylopodium*) 116, 118, XXV.

Lomentaria Lyngbye 一〇三.

lomentarius Lyngb. (*Chorda*) 144.

lomentarius (Lyngb.) J. Ag. (*Scytopsiphon*) 144,
146, XXX.

Lycopodium J. Ag. (*Cladostephus*) 25, 三二.

Lycopodium Turn. (*Fucus*) 25, 三二.

M

macraanthum Kuetz. (*Centroceras*) 47, 六四.

marina Lyngb. (*Chaetothora*) 80.

marina J. Ag. (*Leathesia*) 80.

Mesogloia C. Ag. 90.

micracanthum Kuetz. (*Centroceras*) 47, 六四.

Microcladia Grev. 2.

Microcoelia J. Ag. 九.

Muelleri' Harv. (*Chylocladia*) 43, 六〇.

Muelleri (Sond.) J. Ag. (*Erythrocolon*) 43, 六〇,
XVI.

multifida var. *japonica* Holm. (*Amansia*) 39,
五二.

multipartitum Kuetz. (*Spathoglossum*) 116.

muscoidea (L.) Bory (*Acanthophora*) 38, VIII.

muscoidea L. (*Fucus*) 38.

Myelophycus Kjellm. 七三.

N

nana Zanard. (*Acrocystis*) 23, 30, VI-VII.

Nemalion Torg.-Tozz. 40.

Neurymenia J. Ag. 四七.

nigrescens (Sond.) J. Ag. (*Gymnosorus*) 109.

Nitophyllum Grev. 112.

O

ogasawarensis Okam. (*Caloglossa*) 183, 185,
XXXVII

Opuntia (Good. et Woodw.) Grev. (*Catenella*)
195, 197, XXXIX.

Opuntia Good. et Woodw. (*Fucus*) 195.

orientalis J. Ag. (*Acanthophora*) 35, 37, VIII.

ovale (Huds.) Kuetz. (*Gastroclonium*) 74, 76,
XVII.

ovalis Harv. (*Chylocladia*) 74.

ovalis Huds. (*Fucus*) 74.

ovalis (Huds.) J. Ag. (*Lomentaria*) 74.

oxyacanthum Kuetz. (*Centroceras*) 47, 六五.

P

Pachydictyon J. Ag. 107.

pacifica Kjellm. (*Gigartina*) 165, 166, XXXIV.
 pannosa J. Ag. (*Hypnea*) 47, 48, X.
pardalis De Not. (*Cutleria*) 84.
paradoxa Grun. (*Schottmülleria*) 15, 20.
pectinata (Gunn.) Kjellm. (*Ptilota*) 235, 237,
XLVII.
f. litoralis Kjellm. 236, 238, XL.
pectinata var. *integerrima* Rupr. (*Plumaria*) 236.
pectinatus Grum. (*Fucus*) 236.
pennata Roth (*Ceramium*) 126.
pennata J. Ag. (*Polysiphonia*) 126.
pennata (Roth) Fkbg. (*Pterosiphonia*) 125, 128,
XXVII.
pertusa Post. et Rupr. (*Porphyra*) 93.
pertusa (Post. et Rupr.) J. Ag. (*Rhodymenia*) 93,
94, XXI.
Phaeocarpus Endl. et Dies. —O七.
pinnulata Kuetz. (*Polysiphonia*) 126.
plumosa var. *asplenoides* Ag. (*Ptilota*) 236.
plumosa β *formosa* Kuetz. (*Ptilota*) 236.
plumosa δ *serrata* Kuetz. (*Ptilota*) 236.
polypodioides Gmel. (*Fucus*) 74.
prolifera Okam. (*Haliseris*) 55, 56, XII.
Pterosiphonia Fkbg. 127.
Ptilota C. Ag. 六七.
pulchra (non Mont.) Okam. (*Delisea*) 139.
 var. ? 139.
pulvinata Kuetz. (*Ginnaia*) 10.
pulvinatum Kuetz. (*Myelomium*) 10.
pulvinatum Grun. (*Nemalion*) 39, 41, IX.

R

ramulosa Lindenb. (*Chondria*) 38.
regularis Okam. (*Isoptera*) 31, XII, 四一.
repens Okam. (*Chlanidote*) 112, 115, XXIV.
reticulata Asken. (*Anadyomene*) 91, 一二五.
reticulatum (Asken.) Heydr. (*Rhipidiphyllon*)
91, 一二五, XXX.
Rhipidiphyllon Heydr. —二五.
rhodantha J. Ag. (*Amansia*) 71, 九九.

rhodantha Harv. (*Delesseria*) 71, 九九.
Rhodymenia Grev. 93.
rigens? (Mart.) Grun. (*Endocladia?*) 131, 135.
rigens Mart. (*Gelidum*) 131, 135.
rubrum (non. Ag.) Okam. (*Ceramium*) 248.
rugosa Okam. (*Cylindrocarpus*) 20, 21, v

S

salicornoides Richard. (*Castraltia*) 15, 20.
Sanfordiana Harv. (*Asparagopsis*) 135, 137
XXVIII.
Schmitziana (Rbd.) Okam. (*Carpoblepharis*) 7,
II, 9.
Schmitziana De Toni. et Okam. (*Hemineura*) 23,
VIII, 二八.
Schmitziana (Rbd.) De Toni (*Reinboldiella*) 7.
Schmitzianum Rbd. (*Gloiothamni.n*) 7.
Scinaia. Biv. II.
Scytosiphon (Lyngb.) J. Ag. 145.
serrata Kuetz. (*Ptilota*) 235.
serrulata Harv. (*Delesseria*) 147.
sertulariana Mont. (*Bostrychia*) 96.
simplex Harv. (*Chordaria*) 53, 七三.
simplex (Wulf.) Ag. (*Digenea*) 25, IX, 三二.
sinuosa (Roth) Derb. et Sol. (*Colpomenia*) 86,
88, XIX-XX.
sinuosa Zanard. (*Hydroclathrus*) 87.

sinuosa Roth (*Ulva*) 87.
sinuosus Bory (*Asperococcus*) 87.
sinuosus Ag. (*Encoelium*) 87.

Stenogramma 三七.

Struvea Sond. 201.
Stylopodium Kuetz. 117.
subarticulatum Kuetz. (*Gastroclonium*) 74.
subcostatum Okam. (*Gelidum*) 233, 234, XLVI.

T

tabacoides Okam. (*Desmarestia*) 187, 191
XXXVIII-XXXIX

Teedii Roth (*Ceramium*) 163.
Teedii Kuetz. (*Chondrocanthus*) 163.
Teedii Kuetz. (*Chondroclonium*) 163.
 Teedii (Roth) Lmx. (*Gigartina*) 163, 164,
XXXIII.
 tenella (Vahl) J. Ag. (*Bostrychia*) 96, 100, XXII.
var. *terrestris* J. Ag. 96.
 tenella Harv. (*Gigartina*) 159, 162, XXXIII.
 tenellus Vahl (*Fucus*) 96.
 tenuis Zanard. (*Struvea*) 201, 202, XL.
~~terrestris~~ Harv. (*Bostrychia*) 96.
 Textorii Sur. (*Gracilaria*) 65, XXIII, 九二.
 Textorii Sur. (*Sphaerococcus*) 65.
 tuberiformis Gray (*Leathesia*) 80.

U

umbellatum Kuetz. (*Gastroclonium*) 74.
incinatum (Turn.) J. Ag. (*Nitophyllum*) 121,
 123, XXVI.
undulata Holm. (*Dictyopteris*) 51.
undulata Holm. (*Haliseris*) 51, 53, XI.
 f. *plana* Okam. 52, 55.

V

valida (Kuetz.) J. Ag. (*Chylocladia*?) 43, 60.
valida Kuetz. (*Lomentaria*) 43, 60.
vermicularis Gmel. (*Fucus*) 74.
vermicularis (J. Ag.) Schm. (*Calosiphonia*) 243,
246, XLIX.

vermicularis J. Ag. (*Nemastoma*) 243.
vermicularis J. Ag. (*Lygistes*) 243.
versicolor Kuetz. (*Spathoglossum*) 116.
vesicatum Kuetz. (*Encoelium*) 87.
Vieillardii Kuetz. (*Bostrychia*) 96.
violacea J. Ag. (*Delesseria*) 147.
violaceum (Harv.) J. Ag. (*Apoglossum*) 147, 150,
XXXI-XXXII.
virescens (Carm.) J. Ag. (*Eudesme*) 78, 79, XVII.
virescens Carm. (*Mesogloia*) 78.
virescens Crouan (*Myriocladia*) 78.

10

Wrightiana Harv. (Cladophora) 89, 一二二.
XXIX

Wrightii Harv. (*Anadyomene*) 198, 19
Wulfenii Kuetz. (*Digenea*) 25, 三二.

V

Yatabella Okam - 16

7

Zangibariensis Goeb. (*Caloglossa*) 183.
Zonaria (Drap.) J. Ag. 17.
zonarioides Farlow (*Dictyopteris*) 52, 55.
Zosterae Lyngb. (*Linkia*) 78.
Zosterace Kuetz. (*Mesogloea*) 78.

和名索引

種名索引ト同様日本海藻圖說ノ分ト日本藻類圖譜第一卷
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圖說ノ分; 他ハ圖譜ノ分; G.ハ屬名; 他ハ種名(Species)ナリ。

Ai-somé-gusa (G.) 43.	Fusa-nori (G.) 11.	Hiwodoshi-gusa (G.) 五一.
Ai-somé-gusa 42, IX-X, 45.	Fusa-nori 10, II-III, 12.	Hiwodoshi-gusa 39, XIV,
Ami-ha (G.) 201.	Fushi-tsunagi (G.) 一〇三.	五二,
Ami-ha 201, 202, XL.	Fushi - tsunagi 75, 一〇四,	Hiyoku-so (G.) 四一.
Ami-kusa 250.	XXVI.	Hiyoku-so 31, XII, 四一.
Ami-moyo (G.) 一二五.	Futaye-ōgi (G.) 114.	Hoso-ayaginu 183, 185,
Ami-moyo 91, XXX, 一二五.	Futaye-ōgi 112, 115, XXIV.	XXXVII.
Ana-darus 93, 94, XXI.	Futo-modzuku 89, 91, XX.	Hosoba-no-tosakamodoki 63
Awo-mogusa (G.) 五五.		XXII, 七八
Awo-mogusa 41, XV, 五五.		
Aya-ginu (G.) 180.	Haba-nori (G.) 255.	Ibara-nori (G.) 47.
Aya-ginu 179, 181, XXXVI.	Haba-nori 27, X, 三五; 255.	Ibo-nori 165, 166, XXXIV.
XXXVII.	Habutaye-nori (G.) 二七.	Ichime-gasa (G.) 62.
Beniha-nori (G.) 二三.	Habutaye-nori 23, 二八, VII.	Ichime-gasa 61, 63, XIV-XV.
Beniha-nori 156, 157, XXXII.	Hagachi-no-te 173.	Igirisu 250.
Beni-hiba (G.) 六七.	Hai-ogi (G.) 110.	Igisu (G.) 六三.
Beni-hiba 49, 六八, XVIII.	Hai-ogi 109, XXIX, 111.	Igisu 248, 249, L.
Cha-cha-buri 171.	Halymenia (G.) 175.	Iso-bashō (G.) 四七.
Cha-shiwo-gusa 89, 一二二,	Hana-yanagi 69, XVI, 72.	Iso-bashō 37, 四八, XIII.
XXXV.	Hane-gusa (G.) 127.	Iso-dantsu (G.) 132.
Chiri-momidzi (G.) 8.	Hane-gusa 125, 128, XXVII.	Iso-dantsu 129, 133, XXVII-
Chiri-momidzi 7, II, 9.	Hasappei 171.	XXVIII.
Dainan-kabocha 一九.	Hasudzi-gu-a (G.) 三七.	Iso-matsu (G.) 75.
Darus (G.) 93.	Hasudzi-gusa 29, 三八, XI.	Iso-matsu 74, 76, XVII.
Dzigami-gusa (G.) 117.	Hera-yahadzi 55, 56, XII.	Iso-mochi 41.
Dzigami-gusa 116, 118, XXV.	Hibo-nori 171.	Iso-mokkwa (G.) 196.
Fukuro-nori (G.) 87.	Hige-beniha-nori 19, 二三,	Iso-mokkwa 195, 197, XXXIX.
Fukuro-nori 86, 88, XIX-XX.	VII.	Iwa-higé (G.) 七三.
Fukuro-tsunagi (G.) 五九.	Himé-goké (G.) 一三.	Iwa-higé 53, 七三, XX.
Fukuro-tsunagi 43, 六〇, XVI.	Himé-goké 9, IV, 一四.	Kaba-nori 65, XXII, 九二.
	Himé-tengusa 5, II, 六.	Kabocha 一九.
	Himo-nori 171.	Kagi-ke-nori (G.) 136.
	Hirakusa 233, 234, XLVI.	
	Hira-suginori 165.	
	Hira-watsunagi-so 67, 九五,	
	XXIV.	

(8)

Kagi - ke - nori 135, 137,
XXVIII.
Kagi-usuba-nori 121, 123,
XXVI.
Kagome-nori (G.) 19.
Kagome-nori 18, 19 IV-V.
Kainin-so 25, IX, 三二.
Kai-nori 172, 173, XXXV.
Kamo-kashira-nori 39, 41, IX.
Kashiwaba-benihiba 241, 242,
XLIX.
Katawa-benihiba 239, 240,
XLVIII.
Kawa-gishi 171.
Kayamo-nori (G.) 15.
Kayamo-nori 144, 146, XXX.
Keberi-gusa 84, XIX, 85.
Kidzi-no-wo (G.) —○七.
Kidzi-no-wo 79, XXVII,
—○八.
Kikko-gusa (G.) 206.
Kikko-gusa 205, 207, XL.
Kiku-hiwodoshi 71, XXV,
九九
Kinu-hada (G.) 九.
Kinu-hada 7, III, —○.
Koké-ibara 47, X, 48.
Koké-modoki (G.) 98.
Koké-modoki 96, XXII, 100.
Ko-togé-nori 38, VIII.
Kushi-benihiba 235, 237,
XLVII.
Kushi-no-ha (G.) 152.
Kushi-no-ha 151, 154, XXXII.
Kyo - no - himo 167, 170,
XXXIV.

Makuri (G.) 三一.
Makuri 25, 三二, IX.
Mayuhaki-mo (G.) 一七.
Mayuhaki-mo 13, V, 一八.
Minodzi-nori 171.
Modzuku (G.) 90.

Muchi-mo (G.) 一—四.
Muchi-mo 85, XXVII, 一一六.
Mukade-na 171.
Mukade-nori (G.) 168.

Nehari-mo (G.) 82.
Nehari-mo 80, XVIII, 82.
Niku-saeda 5, 6, I-II.
Numeha-nori (G.) 149.
Numeha-nori 147, 150, XXXI,
XXXII.
Numeri-gusa (G.) 245.
Numeri-gusa 243, 246, XLIX.

Ogonori (G.) 九一.
Okinawa-modzuku (G.) 79.
Okinawa-modzuku 78, 79,
XVII.
Okiten 250.
Ō-mukade-nori 174, 176,
XXXV.
Onikusa 57, XXI, 七九.

Riumon-sō (G.) 66.
Riumon-so 65, 67, XVI.
Sa-edo (G.) 2.
Sa-edo 1, I, 3.
Sainomé-amiba 203, 204, XL.
Sanada-gusa (G.) 107.
Sanada-gusa 105, 108, XXIII,
XXIV.
Sugi-nori (G.) 160.
Sugi-nori 159, 162, XXXIII.
Shikin-nori 163, 164, XXXIII.
Shima-ogi (G.) 17.
Shima-ogi 16, 17, IV.
Shiwa-no-kawa (G.) 21.
Shiwa-no-kawa 20, 21, V.
Shiwa-yahadzu 51, 53, XI.
Shiwo-gusa (G.) 一二一.
Shiwo-kuso 173.

Somen-nori 91.
Sugusa 194.
Su-nori 91.

Tabaco - gusa 187, 191^e
XXXVIII-XXXIX.
Tama-itadaki (G.) 141.
Tama-itadaki 139, 142, XXIX.
Tani-kokemodoki 102, 103,
XXII.
Tengusa (G.) 五.
Togé-igisu 47, 六四, XVII.
Togé-nori (G.) 35.
Togé-nori 35, 37, VIII.
Tori-ashi 一九.
Tosaka-modoki (G.) 八五.
Tsukushi-hodzuki (G.) 29.
Tsukushi-hodzuki 23, 30, VI,
VII.
Tsurumo (G.) 七五.
Tsurumo 55, 七六, XX.

Uki-ori-so (G.) 198.
Uki-ori-so 198, 199, XL.
Umi-zomen (G.) 40.
Urushi-gusa (G.) 190.
Usuba-nori (G.) 122.

Watsunag'so (G.) 九五.

Yahazu-gusa (G.) 53.
Yahazu-gusa 59, 60, XIV.
Yanagi-nori (G.) 14.
Yatabe-gusa (G.) 1.
Yatabe-gusa 1, I, —.
Yezo-yahadzu 57, 58, XIII-
XIV.
Yuikiri (G.) 一九.
Yuikiri 5, 一九, VI.
Yuna 12, 14, III.

ICONES OF JAPANESE ALGAE Vol.I.

By

K. OKAMURA. *Rigakuhakusho*

日本藻類圖譜(全七卷) 第一卷

昭和二十六年八月二十五日印刷

昭和二十六年八月三十日発行



(定價2,500圓)

著者 岡村金太郎

発行者 風間歳次郎
東京都千代田区神田神保町一ノ三四

印刷者 加藤広太郎
東京都千代田区神田一ノ橋二ノ九

発行所 株式会社 風間書房

東京都千代田区神田神保町一の三四

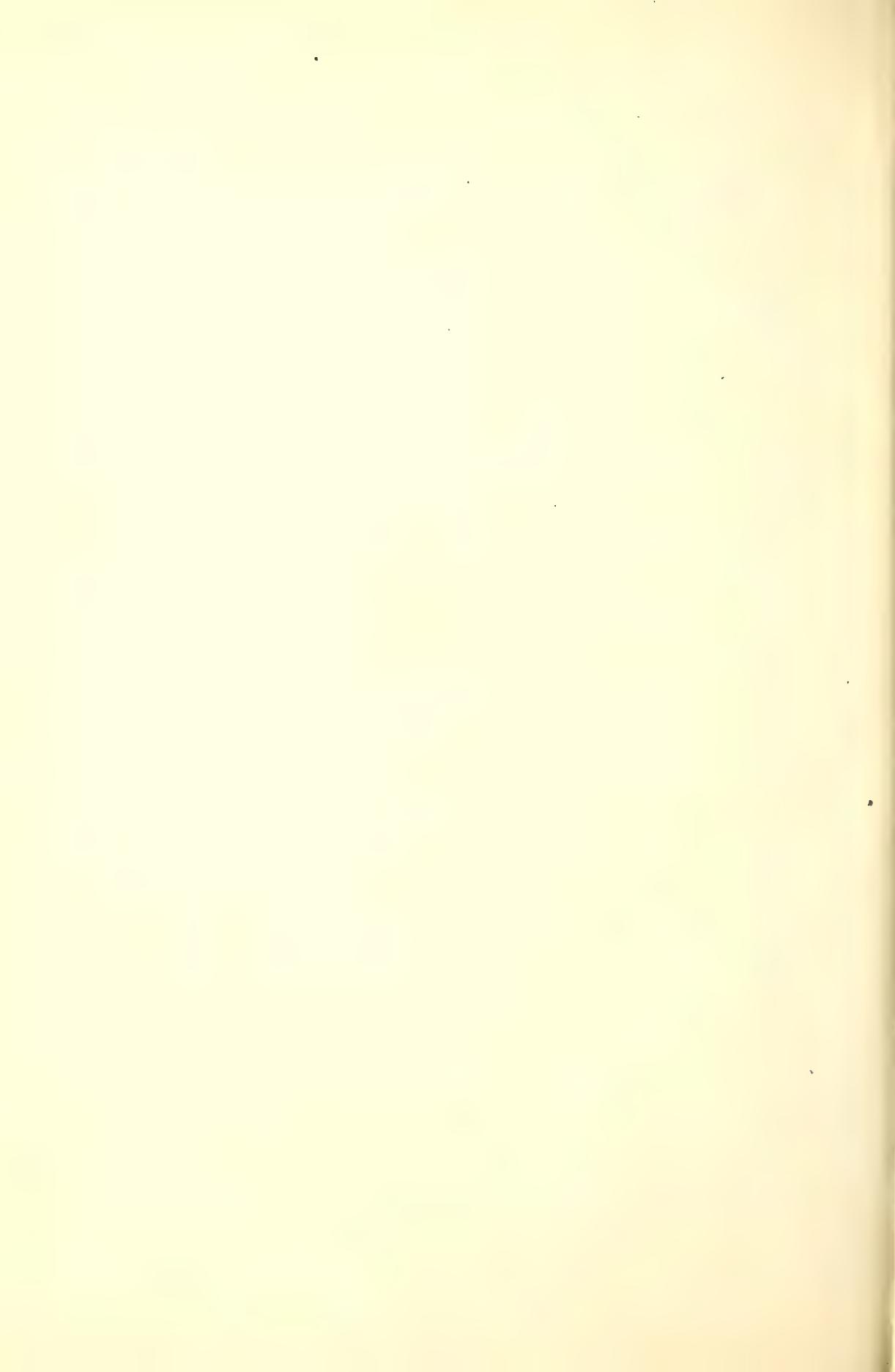
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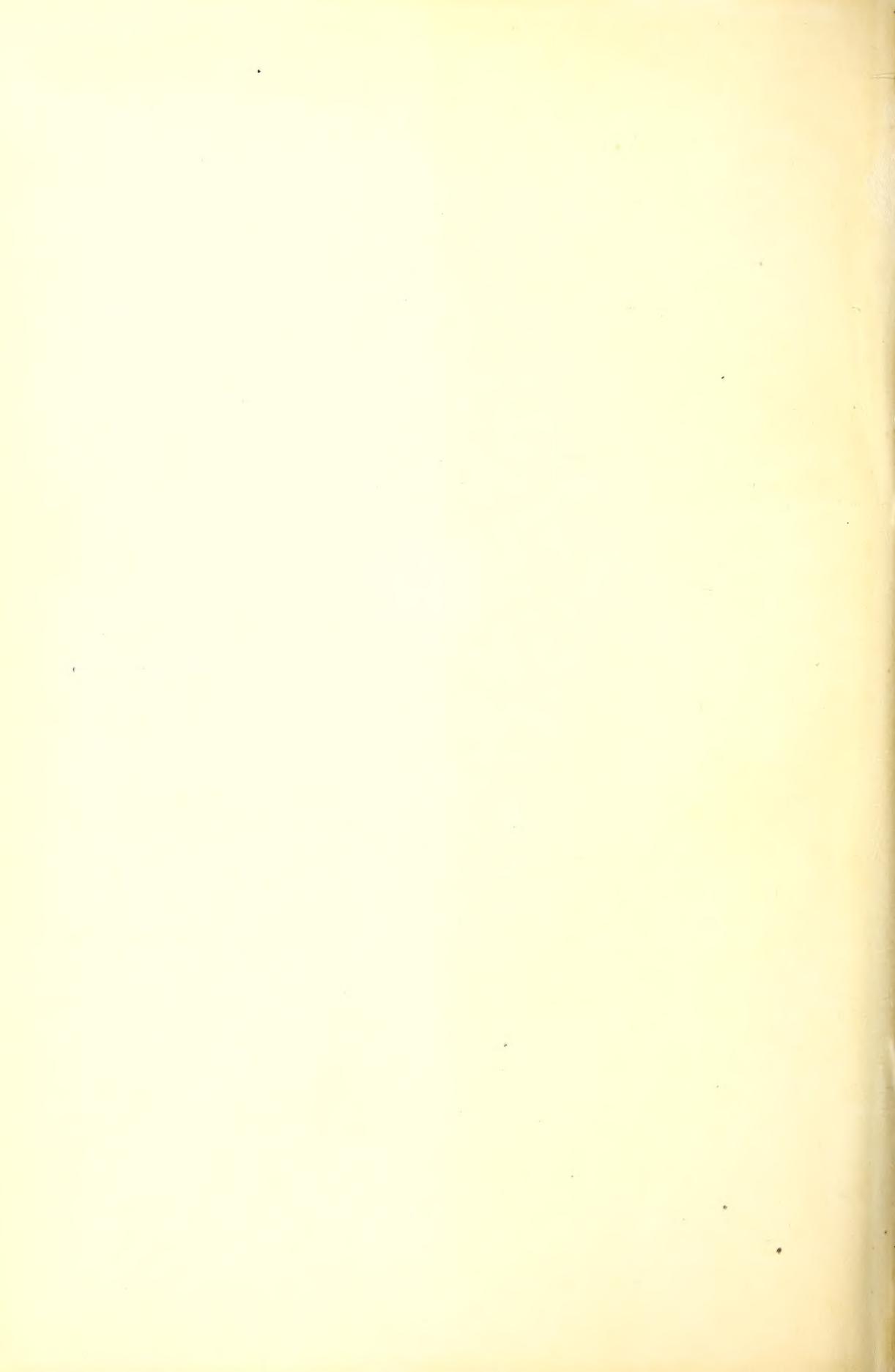
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